RESPONSIVENESS SUMMARY

Overview

Operable Unit (OU) 2-12, Perched Water System, is the second OU to be addressed within Waste Area Group (WAG) 2, Test Reactor Area at the Idaho National Engineering Laboratory (INEL). A Proposed Plan was released June 26, 1992, with a public comment period from July 6 to August 5, 1992. The Proposed Plan recommended that no remedial action of the Perched Water System was necessary. This responsiveness summary provides a summarization of comments received during the comment period and responses to the summarized comments.

Background on Community Involvement

To announce the beginning of the Perched Water investigation project, public informational meetings were held in late July 1991 in Idaho Falls, Pocatello, Twin Falls, Boise, and Moscow. The meetings were to explain how the Comprehensive Environmental Resource, Compensation, and Liability Act (CERCLA) process works and to introduce the Perched Water System site investigation project to the public. These informational meetings were announced via the *INEL Reporter* newsletter, which is distributed to the INEL employees as well as the general public; through newspaper and radio advertisements; and an INEL press release. Personal phone calls were made to key individuals, environmental groups, and organizations by the INEL field offices in Pocatello, Twin Falls, and Boise. The Community Relations Plan Coordinator also made calls to community leaders in Idaho Falls and Moscow.

When the investigation was complete, a Notice of Availability for the Proposed Plan for the remedial action of the Perched Water System was published June 26, 1992 in the *Post Register* (Idaho Falls), *Idaho State Journal* (Pocatello), *Times News* (Twin Falls), *Idaho Statesman* (Boise), and *Daily News* (Moscow/Pullman). A similar newspaper advertisement appeared in the same newspapers the following week repeating the public meeting locations and times. Personal phone calls, as noted above, were also made to inform interested individuals and groups about the opportunity to comment.

The Proposed Plan for the remedial action of the Perched Water System was mailed June 26, 1992, to 6,500 individuals on the INEL mailing list. It included a cover letter from the Director of the Environmental Restoration Division of the U.S. Department of Energy (DOE) Idaho Field Office urging citizens to comment on the Proposed Plan and to attend public meetings. Copies of the Proposed Plan and the entire Administrative Record are available to the public in six regional INEL information repositories: the INEL Technical Library in Idaho Falls; and city libraries in Idaho Falls, Pocatello, Twin Falls, Boise, and Moscow. The original documents comprising the Administrative Record are located at the INEL Technical Library; copies from the originals are present in the five other libraries. These copies were placed in the information repository sections or at the reference desk in each of these libraries.

The public comment period on the Proposed Plan for the Perched Water System was held from July 6 to August 5, 1992. No requests for extensions were made. Technical briefings were conducted via speaker phone to interested members of the public in Twin Falls, Moscow, and Pocatello on July 13, 14, and 15, 1992, respectively. Public meetings were held July 20, 21, 22, and 23, 1992 in Idaho Falls, Burley, Boise, and Moscow, respectively. At these meetings, representatives from DOE, the Environmental Protection Agency (EPA), and the State of Idaho Department of Health and Welfare discussed the project, answered questions, and received public comments. Verbatim transcripts of each public meeting were prepared by a court reporter.

A Responsiveness Summary has been prepared as part of the Record of Decision. All verbal comments, as given at the public meetings, and all written comments, as submitted, are repeated verbatim in the Administrative Record for the Record of Decision. Those comments are annotated to indicate which response in the Responsiveness Summary addresses each comment. It should be noted that the Responsiveness Summary groups similar comments together, summarizes them, and provides a single response for each comment group. This Record of Decision presents the selected no action alternative for the Perched Water System OU at the INEL, selected in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The decision for this OU is based on the information in the Administrative Record.

Summary of Comments Received During Public Comment Period

Comments and questions raised during the Perched Water System public comment period on the Proposed Plan are summarized briefly below. The comment period was held from July 6 to August 5, 1992. Many of the questions were answered at the public meeting as reflected in the transcripts in the Administrative Record file. Comments and questions on a variety of subjects not specific to the Perched Water System Proposed Plan were recorded. Those subjects included nuclear materials production, diversion of cleanup funds, and the need for the EPA to establish MCLs for several radionuclides, metals, and anions. Responses to those comments are not included in this Responsiveness Summary. Additional information on these unrelated topics can be obtained from the INEL Public Affairs Office in Idaho Falls or at the local INEL offices in Pocatello, Twin Falls, and Boise. Comments and questions regarding community participation in general were referred to the INEL Community Relations Coordinator and will be addressed during updates to the Community Relations Plan. Questions on the Perched Water System submitted during the formal comment period, including those provided during the public meetings, are categorized below.

Remedial Investigation

1. **Comment:** Commenters question DOE's characterization of the size of the contaminated perched water zone. As noted in a comment on the Remedial Investigation Report from IDHW, the wells along the northeast margin of the Perched Water System are too deep to adequately represent water levels. (W1-5, W8-2, T2-4)

Response: This issue was identified in IDHW's January 1992, comments on the Remedial Investigation Report. The concern was resolved as follows: The size of the deep perched zone is estimated from water-level measurements in deep perched zone wells. These wells measure the thickness of the deep Perched Water System above the 150-foot interbed (150 feet below land surface) upon which the water is perched. It is true that the deep perched water could extend farther to the northeast than is illustrated in the figures in the Remedial Investigation Report. Although the lateral extent of the deep perched zone to the northeast is not fully constrained by dry perched wells which would indicate the extent of perched water, water levels in wells such as PW-7, USGS-72, USGS-74, USGS-66, and USGS-71, indicate that the perched water zone tapers laterally, allowing a reasonable approximation of the edge and, therefore, the size of the perched zone. Model results are based on a perched water body with no confining boundary conditions, thus simulating a more laterally extensive system (worst-case) than is observed. Therefore, defining the exact edge of the entire Perched Water System is not crucial for modeling the system.

2. **Comment:** Commenters state that no evidence is presented to show there is no interaction between percolating water from the Big Lost River when it flows near the Test Reactor Area, and the deep perched water from the wastewater ponds at the Test Reactor Area. (W5-6, W5-7, W5-8)

   Response: Section 3.5.3 of the Remedial Investigation Report discusses the influence of the Big Lost River on the Perched Water System. The evaluation accounts for flow in the Big Lost River in conjunction with wastewater discharges to the Test Reactor Area ponds. Flow in the Big Lost River has at times created a perched water body near the Test Reactor Area that influenced the deep Perched Water System. The water from Big Lost River recharge appeared to have a short term "damming" effect on movement of water from the Perched Water System beneath the Test Reactor Area as discussed in Section 3.5.3.1 of the Remedial Investigation Report. However, contaminant concentrations were not significantly affected. The model did not include interaction between the Big Lost River and the Perched Water System beneath the Test Reactor Area because historic observations do not indicate a consistent or significant pattern of interaction. The three-year review will evaluate this assumption and others upon which this decision is based to ensure that the assumptions remain valid and that health and the environment are being protected.

3. **Comment:** Commenters state that the possibility of floods and earthquakes should not be ignored. The Test Reactor Area appears to be in the flood plain of the Big Lost River. (T4-10, W5-4, W5-6)

   Response: The possible effects to the Perched Water System from the occurrence of a catastrophic event (e.g., an earthquake or volcanic activity) were addressed in a qualitative sense to understand the potential effect of such events on the Perched Water System. Big Lost River flooding was addressed in Section 3.5 of the Remedial Investigation Report. The results of the evaluation indicate that because of the long recurrence intervals between these events and the predicted dissipation of the Perched Water System (i.e., 7 years after wastewater discharge ceases) these events would have minimal impact on the Perched Water System.

Contaminants

4. **Comment:** Commenters state that the use of mean contaminant concentrations in risk assessment is inappropriate because it understates risk. The risk assessment should be repeated based on a model that considers the highest contaminant concentrations. (T4-2, T4-7, T4-20, W1-9, W6-2, W7-3, W8-4)

   Response: The mean concentrations presented in Table 1 of the Proposed Plan were not used to conduct the risk assessment. Table 1 of the Proposed Plan included mean concentrations from the shallow and deep perched zones and the Snake River Plain Aquifer in order to provide a summary of the levels of contamination found during the investigation. The table was not intended to represent the exposure values used in the risk assessment. The exposure assessment was based on exposure concentrations predicted by the groundwater model. The intent of the modeling effort was to provide a mathematical representation of the movement of water and contaminants in the perched water system and was based on all available data. Once the model was found to adequately represent the system, it was used to predict future contaminant concentrations which would reach the Snake River Plain Aquifer. The model attempted to evaluate the upper-bound of the exposure concentrations by evaluating contaminant concentrations in the upper part of the aquifer before any dilution effects could occur. The risk assessment calculations were based on output concentrations from the model. The future scenario risk calculations were based on the modeled concentrations for the contaminants of concern at the year 2115. These concentrations are listed in Table 6. The concentrations were then assumed to remain constant throughout the thirty-year exposure period ending in 2145. For the near-term calculations, the average modeled concentrations for each of the five near-term thirty-year periods were used for tritium, chromium, and cadmium. These concentrations are listed in Table 9.

5. **Comment:** Commenters raise concerns about data presented in Table 1 (page A-7) of the Proposed Plan. Some commenters feel drinking water standards for several radionuclides should have been provided. (T1-15, T2-6, W1-10, W8-5)

   Response: Table 1 of the Proposed Plan identifies the drinking water standard for beta and gamma emitting radionuclides at 4 millirem/year. It is acknowledged that the levels of radionuclides in the shallow perched zone exceed drinking water standards. With respect to identifying specific radionuclide standards in the Proposed Plan, the National Primary Drinking Water Regulations (40 Code of Federal Regulations 141) state that "if two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 millirem/year...". The exposure should be calculated as a summation of the activities contributed by all radionuclides present (cesium-137, americium-241, cobalt-60, etc.). In preparation of the Proposed Plan, it was felt that it would be confusing to readers to list calculated standards based on the 4 millirem limit for each radionuclide, that it would be a misrepresentation of the standard, and that risk would be understated. Standards will be stated more clearly in future Proposed Plans, as applicable.

6. **Comment:** One commenter expresses interest in the contaminant concentrations shown in Table I, Columns B and C, of the Proposed Plan. These data show that tritium and chromium concentrations are lower in the deep perched water than in the Snake River Plain Aquifer. This is contrary to what would be expected (i.e., concentrations decreasing with depth). (W2-2)

   Response: The reason for tritium and chromium concentrations being higher in the Snake River Plain Aquifer than in the Deep Perched Water is not known for certain. However, a likely contributing factor is the influence of infiltration of water from the cold waste pond having a more pronounced diluting effect on the deep perched water than on the Snake River Plain Aquifer water below. In recognition that certain details of the perched water system are not understood fully, monitoring of the system and the three-year review will be conducted as discussed in Section 7.

7. **Comment:** Commenters state that the information provided to the public in the Proposed Plan, provides an incomplete picture of contamination in the Perched Water System. Commenters note levels of contamination discharged to the perched water system and detected in the shallow perched system. A commenter also feels that the fact that production wells which provide drinking water to TRA employees are not contaminated should be stated. (T1-13, T4-14, W1-6, W1-9)

   Response: The Proposed Plan was intended to be a brief summary of information supporting key conclusions on which the proposal was based. Detailed information is in the Remedial Investigation Report, available to the public in the Administrative Record and the Information Repositories. We recognize that significant concentrations of radionuclides have been released to the Perched Water System. Section 4 of the Remedial Investigation Report contains a complete description of the sources of wastewater disposal and waste disposal history to the Perched Water System. Section 4 of the report also includes observed contaminant concentrations in the shallow and deep perched water zones and the Snake River Plain Aquifer. It is also acknowledged that production wells at the TRA which are the source of drinking water to TRA workers, are not contaminated and that there is currently no risk to workers due to their use of the wells. Data from the production wells was used as background to which other contaminant levels were compared for screening purposes. The Remedial Investigation Report was available prior to the public meeting for review in the Administrative Record for the Perched Water System at the information repositories listed in the introductory section to the Responsiveness Summary.

8. **Comment:** Commenters state that contaminant transfer time within the Snake River Plain Aquifer is uncertain because the Snake River Plain is composed of highly permeable bedrock and sediments. Persistent pollutants produced at the INEL will eventually appear in the off-site environment. (T2-7, W1-12, W1-15, W1-20, W5-3, W8-7, W8-9)

   Response: We understand that the Perched Water System and the Snake River Plain Aquifer beneath the TRA occur in permeable and heterogenous rock and sediments. However, the perched water system and the aquifer have been monitored for 40 years and considerable information has been developed regarding movement of water and contaminants in the subsurface in the vicinity of the TRA. The groundwater computer model which was developed for the investigation was based on and compared or calibrated to this historical information to ensure that an adequate representation of the system's past behavior was possible before the model was used to estimate its future behavior. Therefore, even though the subsurface rock and sediments are heterogeneous and permeable, the system can be represented adequately to make reasonable estimates of its future behavior.

   We also agree that Snake River Plain Aquifer water beneath the TRA will eventually flow off-site. However, the purpose of the remedial investigation was to assess the risk resulting from the Perched Water System's effect on the Snake River Plain Aquifer directly beneath the TRA before any dilution would occur as the water moved away from the TRA or to greater depths in the aquifer. This approach was to provide a reasonable estimate of the maximum risk which would result due to infiltration of the contaminated perched water to the aquifer by calculating the exposure to a potential future resident who would draw water from the upper part of the aquifer directly beneath the perched water.

   Future remedial investigations including the TRA comprehensive investigation and the final INEL and Snake River Plain Aquifer investigations will further address the subject of movement of contaminants in the aquifer both within INEL boundaries and off site.

9. **Comment:** One commenter questiones whether the model reflects groundwater movement and is able to adequately predict future contaminant concentrations. The model should be independently verified. (W5-9)

   Response: We recognize that a mathematical computer model can not exactly represent the Perched Water System. However, the groundwater model was calibrated with historic data for tritium and chromium to ensure that it represented the Perched Water System, as noted in the response to comment #7. The conditions under which this "match" was achieved were then applied for the future projections. Groundwater monitoring will be conducted to verify that contaminant concentration trends follow those predicted by a groundwater computer model as noted in Section 7 of the Record of Decision.

   The application of the computer fate and transport groundwater model for the Perched Water System Remedial Investigation including the input parameters and the model output are described in Section 5 of the Remedial Investigation Report. This information was available for technical reviewers to use in developing their own models as independent verification of the model results. The presentation of the model results have been subject to technical reviews by individuals independent of the Perched Water System Remedial Investigation, including the EPA and the State of Idaho.

10. **Comment:** One commenter believes that leaching and pollutant concentration values generated by the model for the 125-year period are used for the rest of the planning effort as though they are hard, real, measured data. The commenter believes that these data are highly speculative and unreliable and deserve to be treated with great reserve. The commenter believes the modeled data should be used with variances or confidence intervals and have statistical reliability attached. (W5-10)

    Response: The use of confidence intervals to quantify uncertainty of the model was not applied because it was not felt that the information gained by a quantitative uncertainty analysis would justify the time and resources required. One reason is the existence of a wealth of historical information available for model calibration which helped constrain model input parameters in order to adequately represent the system. Post-Record of Decision monitoring will also serve to verify the model results and the conclusions based upon the model. However, Table 5-5 in Section 5 of the Remedial Investigation Report provides the model assumptions and the uncertainty factors that could potentially impact the results. Health-protective assumptions and input parameters were selected to ensure that the model did not underestimate exposure concentrations. A purpose of the Post-Record of Decision monitoring is to evaluate the adequacy of the model predictions (see Section 7 of this Record of Decision).

11. **Comment:** One commenter states that the Proposed Plan indicates that tritium concentrations will decrease due to natural radioactive decay but does not mention dilution as a factor in what is taking place. (T1-14)

    Response: The Perched Water System remedial investigation focused on contaminant migration from the Perched Water System to the Snake River Plain Aquifer. Although dilution of tritium and chromium in the Snake River Plain Aquifer is likely taking place, the model and the risk assessment performed with the modeled concentrations did not account for dilution effects in the Snake River Plain Aquifer downgradient from the Test Reactor Area to ensure the most conservative case was evaluated and that risk would not be underestimated.

Risk Assessment

12. **Comment:** One commenter states that risk decisions should be based on one chance in one million rather than the one chance in ten thousand to one chance in one million range. (W1-18)

Response: The one in ten thousand to one in one million risk range was established in the NCP as the range within which risk is considered to be acceptable for assessment of risk conducted under CERCLA.

Scenarios

13. **Comment:** Commenters ask if a plan exists for groundwater monitoring at the Test Reactor Area 125 years from now. (T1-1, W4-1)

    Response: The need for monitoring 125 years in the future has not been established. In fact, risk due to contaminants in the Perched water system is expected to be within acceptable levels within the next 20 years. Criteria and duration for future monitoring will be developed as near-term monitoring results are evaluated. This plan is described briefly in Section 7. The purposes of Post-Record of Decision monitoring are to: (1) evaluate how contaminant of concern concentration trends in the Snake River Plain Aquifer compare to those predicted by computer modeling; and (2) evaluate the effect of discontinued discharge to the warm waste pond on fate of contaminants in the Perched Water System and impact on the Snake River Plain Aquifer.

14. **Comment:** Commenters state that institutional control by the DOE for 125 years is questionable and it should not be assumed for planning purposes that DOE will be in control at INEL in 125 years. Another commenter suggested that the INEL's designation as a National Environmental Research Park may ensure government control for 125 years or more. (T1-2, T1-7, T1-9, T1-11, T2-8, W4-2, W8-8)

    Response: The 125 year future resident-farmer scenario was assessed as one likely timeframe for establishment of residents at the Test Reactor Area. This timeframe was selected based on 10 CFR 61 providing for 100 years of institutional controls for low level waste disposal areas after operations have ceased. Even though the INEL has been designated as a National Environmental Research Park, there is still uncertainty of future land use and continuation of operations at the Test Reactor Area many years into the future. Thus, five near-term risk scenarios were also evaluated assuming that residence would be established immediately. The results of the near-term scenario evaluations concluded that contaminant concentrations will be within the acceptable risk range by the year 2000. In addition, the concentration of chromium and tritium will be below the MCLs by the year 2020. This information suggests that even though long-term land use at the INEL is not certain, it is reasonable that the INEL will remain in government control beyond when contaminant concentrations associated with the TRA Perched Water system fall to within acceptable levels.

15. **Comment:** Commenters state that DOE's contention that there is no current use of the perched aquifer water near the Test Reactor Area is unacceptable; some drinking water wells (at the Idaho Chemical Processing Plant and Central Facilities Area) are 2 to 3 miles downgradient. (T2-8, W1-13, W1-14, W8-7, W8-8)

Response: We recognize that drinking water wells are located at the Central Facilities Area and at the Idaho Chemical Processing Plant. The statement in the Proposed Plan referred to the fact that there are no wells which currently draw water directly from the TRA Perched Water System or the Snake River Plain Aquifer directly beneath for other than monitoring purposes. The wells which produce water from the Snake River Plain Aquifer at the TRA are upgradient from the contamination and are regularly monitored to ensure that they are not contaminated. The scope of this investigation did not include an evaluation of the migration of contaminants in the Snake River Plain Aquifer down gradient of the TRA, the Final INEL/Snake River Plain Aquifer RI/FS will address aquifer risks from the broader perspective of the INEL as a whole. It should also be noted that all drinking water wells at the INEL are routinely monitored to ensure the water does not exceed MCLs.

Contaminant Screening

16. **Comment:** Commenters questioned the appropriateness of eliminating radioactive isotopes with half-lives of greater than 5 years from the risk assessment, such as Cs-137, Iodine-129, and Plutonium -238, -239, and -240 which have long half-lives and have been detected in the sediments of the Warm Waste Pond. (T2-5, W1-8, W1-11, W8-3, W8-6)

Response: The Proposed Plan included only those contaminants which were retained after the screening process and were carried through the entire risk assessment process. The Proposed Plan is intended to be a summary of the highlights and findings of the risk assessment. Plutonium-239 and -240 were not carried through the risk assessment because they were not detected in either the shallow or deep perched water. Plutonium-238 was detected in the shallow perched water but was eliminated from the risk assessment because it contributed to less than 1 percent of the overall risk. Cesium-137 was carried through the entire risk assessment as a contaminant of concern. Iodine-129 was not addressed in the investigation as a potential contaminant of concern because such a small amount was released (1.1×10^{-8} curies per year; Batchelder, 1981) to the ponds. The concentration of this amount of Iodine-129 in the volume of water released to the Warm Waste Pond alone (5.35×10^{9} gallons; See Table 1) would be in the 10^{-5} pCi/l range. With the added volume of the cold waste pond water to the perched water system concentrations would be even lower. Detection limits for standard Iodine-129 analysis are well above that, in the 1-3 pCi/l range. It is difficult to compare these concentrations to drinking water standards because the standard for beta emitting radionuclides in drinking water is a maximum dose of 4 millirem per year to the total body or any internal organ. For Iodine alone, the 4 millirem standard equates to 21 pCi/l which is well above expected concentrations in the perched water system. Although this comparison is instructive, as discussed in the response to comment number 5, this standard calculated based on Iodine alone must be viewed as an order of magnitude estimate for comparison with the drinking water standard because the standards applies to the total dose from all beta emitters contributing a dose.

17. **Comment:** One commenter is concerned that screening out contaminants based on their small individual contribution to risk, as was done to develop the list of contaminants of concern presented in the Proposed Plan, may cause significant underestimation of the overall risk if these contaminants were evaluated on a cumulative basis prior to screening. (T4-12)

Response: The risk assessment guidance developed by EPA suggests that this type of screening be done in the risk assessment to limit the number of contaminants which are carried through the entire assessment. It is true that contaminants should not be excluded from the risk assessment if they contribute significantly to overall risk, even if only on a cumulative basis. The Remedial Investigation Report describes the process which was followed to develop the list of contaminants which were carried through the entire risk assessment process. The Proposed Plan is only a summary of the highlights and conclusions of the Remedial Investigation Report. In this case, the contaminants which were carried through the assessment contribute to over 98 percent of the total carcinogenic and noncarcinogenic risk.

Ecological Risk Assessment

18. **Comment:** One commenter states that research on native plants at the Test Reactor Area indicates some have root systems 10 to 20 feet down into contaminated subsurface soil. (T4-9)

Response: There are currently no known plants in the vicinity of the TRA which have root systems that could reach the contaminated perched water. The shallow perched water only occurs directly beneath the ponds and will cease to exist once discharge to the ponds is discontinued before deep-rooted plants would have time to develop.

19. **Comment:** One commenter expresses concern that research on INEL flora and fauna is incomplete, yet DOE presumes to set "safe concentrations" for all plant and animal populations. (T4-21, W7-4)

Response: We recognize that there are gaps in the available toxicity data for plants and animals which resulted in the ecological assessment being qualitative rather than quantitative in nature. The intent of the risk assessment was not to attempt to set safe concentrations for all plant and animal populations at the INEL. The assessment was to determine if the levels of contaminants of concern which are predicted to be in the Snake River Plain Aquifer would cause adverse effects to major species or communities. Given the information available regarding the levels of these contaminants which are harmful to plants and animals, the projected concentrations of contaminants of concern are not expected to result in unacceptable risk. Ecological risk will be addressed for TRA as a whole during the comprehensive WAG 2 investigation and for the INEL as a whole in the final WAG 10 investigation.

Alternatives

20. **Comment:** Commenters object to DOE's continued use of the warm and cold waste ponds in light of the decision to allow the contaminants to remain in the perched zones. (W1-7, W1-21, W5-11, W6-4, T2-1, T2-2, T4-4, T4-6, T4-11)

    Response: The CERCLA process under which the Perched Water remedial investigation and risk assessment were conducted concludes that action is not necessary to reduce risks at the site. The warm waste water was identified as a source of contamination to groundwater. Construction of a new lined replacement pond is underway and is anticipated to be complete in 1993. While the cold waste pond is expected to remain in use until at least the year 2007, the effluent discharged to this pond does not contribute to contamination in the Perched Water System. Infiltration of cold waste effluent into the Perched Water System was included in the model that generated contaminant exposure concentrations used in the human health risk assessment (see Remedial Investigation Report Section 6). The risk assessment indicates that no unacceptable adverse impacts to human health or the environment occur as a result of continued use of the cold waste pond. As noted in responses to previous comments, monitoring of the Perched Water System will be conducted to ensure that these modeling assumptions are correct.

21. **Comment:** One commenter asks if other options were considered and if so, what were they? What were their costs? What was the decisive factor in their being rejected? Were any new and innovative solutions considered? (T4-23)

    Response: An analysis of other cleanup alternatives was not completed. Two remedial action objectives were identified at the onset of the Remedial Investigation. The first remedial action objective was to prevent risks to human health that would result from residential/agricultural use of Snake River Plain Aquifer water containing contaminants of concern in excess of maximum contaminant levels, or that would constitute human carcinogenic risk in excess of the NCP target risk range (10^{-6} to 10^{-4}) or a noncarcinogenic hazard index of greater than 1.0. The human health risk assessment indicates that this remedial action objective will be achieved if no action is taken. The second remedial action objective was to prevent human ingestion, inhalation or direct contact with contaminated shallow or deep perched groundwater. This remedial action objective will be met because existing institutional controls at the Test Reactor Area and INEL will likely remain in place at least through the time it takes for contaminant levels in the Snake River Plain Aquifer to decrease to an acceptable level. The investigative process under CERCLA and the NCP generally consists of the remedial investigation which evaluates the nature and extent of contamination and the risk to human health and the environment resulting from that contamination followed by a feasibility study which evaluates various cleanup technologies to determine the best method for reducing the risk to within acceptable levels and achieve the cleanup or remedial action objectives. In the case of the Perched Water System, it was determined that the no action was necessary to reach the remedial action objectives stated above. Therefore, additional resources were not expended to complete an analysis of a variety of other cleanup methods and items such as cost were not a factor.

22. **Comment:** Several commenters state that other alternatives should be evaluated such as: pump polluted water out of the perched water table, treat/purify the water, and store it in a safe, monitored environment; recycle noncontaminated wastewater; stop use of all leach ponds and pump contaminated water to a treatment system; try the Ultrasound Water Reclamation method. Additionally, pump liquid adsorbents into the perched water table to remove more pollutants; monitor the perched water table areas; and cap the entire area above the perched water system to prevent infiltration and direct run off to the Big Lost River channel. (T2-10, T3-2, T4-16, T4-17, W1-17, W1-19, W1-20, W1-21, W3-2, W5-11, W8-12)

    Response: We agree that cleanup technologies could be implemented to remove some of the contamination from the perched water system at TRA. However, the purpose of implementing such technologies under the Superfund program would be reduce unacceptable risk to human health and the environment. Based on the risk assessment and risk management considerations and conclusions as presented in Sections 6 and 7 of the Remedial Investigation Report, the risk to human health and the environment was found to be within the acceptable limits. Therefore, evaluation of other alternatives was not pursued further.

23. **Comment:** Several commenters agree that the "no action" alternative for the Perched Water System is acceptable because contaminant concentrations are below MCLs, clean up of the Perched Water System would be a waste of money, and the alternative is realistic and logical. This type of extensive evaluation should not be necessary in the future for similar levels of contamination. (T1-3, T1-5, T1-6, T1-10, T3-1, T1-12, W2-1, W2-3, W3-1, W5-1)

    Response: DOE, EPA, and IDHW agree that no action is necessary based upon the risk assessment which shows that no unacceptable risk exists and that monitoring will ensure that predicted contaminant trends in the Snake River Plain Aquifer are verified.

    This evaluation will provide insight when similar types and levels of contamination are investigated in the future. However, it cannot be concluded that no evaluation will be necessary. Each site must be evaluated on its own merits and on its associated contaminants and exposure pathways.

24. **Comment:** Several commenters disagree with the "no action" proposal and stated that DOE should be required to clean up the contamination in the Perched Water System because the contaminants will continue to migrate into the subsurface and risk levels will rise. (T1-4, T2-9, T4-1, T4-16, T4-18, T4-22, T4-24, T4-26, W1-1, W1-4, W1-19, W5-5, W5-12, W6-1, W6-7, W7-1, W8-11)

    Response: The Agencies respect the opinion of the commenters; however, there is no information available which we believe supports changing the decision from what was presented in the Proposed Plan. The remedial investigation and risk assessment conducted for the TRA Perched water show that contaminant levels and associated risk will continue to decrease and that no unacceptable risk is posed by the contaminated perched water. Elimination of the Warm Waste Pond in 1993 will support this decrease in risk. Monitoring will be conducted to ensure the Perched Water System continues to behave as expected. Investigations and remedial actions at the INEL, including the Perched Water Remedial Investigation, are conducted in accordance with CERCLA, its implementing regulation the NCP, and the INEL Federal Facilities Agreement/Consent Order and associated EPA guidance. The Federal Facilities Agreement/Consent Order also provides for EPA and State of Idaho review of all activities. This review is to ensure that decisions are made with sound technical basis.

Public Involvement

25. **Comment:** Details of the monitoring plan were requested during the technical briefings held via speaker phone prior to the public meetings and during the public meeting in Idaho Falls. The commenters request to see the monitoring plan before publication of the Record of Decision. (T1-1, T1-8, W4-1)

    Response: The purpose of the proposed plan was to present the agencies recommendation to the public for comment. The recommended alternative presented in the Proposed Plan was for no remedial action with monitoring of the Perched Water System. Details for a monitoring plan would have been premature in the Proposed Plan. At the time the plan was released the "no remedial action" with monitoring decision had not been finalized. At the public meeting in Idaho Falls, general components of the monitoring plan were discussed during the agencies' presentation of the proposed plan. Subsequent presentations during the public meeting period were modified to include discussion and visual aids to describe the components that were being considered for the development of the monitoring plan. Section 7 of this Record of Decision documents that DOE will submit a draft monitoring plan to the Agencies for review within 45 days of the finalization of the Record of Decision. Once finalized, the monitoring plan will be available in the information repositories. As noted in Section 7, monitoring data will be made available in the Information Repositories.

26. **Comment:** One commenter requests that DOE publish the public comments made at the original scoping meeting on this project. (T1-16)

    Response: The comments made at the original scoping meetings are summarized in the Scoping Report and have been made available at the information repositories listed in the introductory sections to the Responsiveness Summary.

Fragmentation

27. **Comment:** Commenters state that public recognition of potential pollution problems at the INEL may be diminished by focusing on only a few of the 49 waste management units at the Test Reactor Area. Relationships among facilities and OUs should be spelled out in detail. A segmented approach frustrates a comprehensive assessment of the collective contamination and the cumulative effects being released by all waste sites. The final WAG 10 INEL-wide assessment should begin now, especially the assessment of contamination in the Snake River Plain Aquifer, rather than wait until 1998. (T2-3, T4-3, T4-5, T4-8, T4-11, T4-13, T4-15, T4-19, T4-24, T4-25, T4-27, W1-2, W1-3, W1-16, W5-2, W6-3, W6-5, W6-6, W7-2, W8-1)

Response: The approach implemented in the INEL Federal Facilities Agreement/Consent Order, including the concept of addressing the numerous sites at the INEL in operable units, is consistent with the NCP. One of the stated purposes of the NCP (300.3 b) is to provide for efficient, coordinated, and effective response to release of hazardous substances. Section 300.430 of the NCP states that complex sites should generally be addressed in operable units when early actions are necessary or appropriate to achieve significant risk reduction quickly, when phased analysis and response is necessary or appropriate given the size or complexity of the site, or to expedite the completion of the total site cleanup. It is acknowledged that cumulative risks are generally not being evaluated at this time, early into the implementation of the agreement. This is because of the complexity of the INEL, the numerous sites that must be investigated, and the need to address sites posing the greatest potential risk as soon as possible. The agencies recognized that cumulative assessments should be done and scheduled comprehensive investigations on both the individual WAG and the INEL-wide level. However, cumulative risks can not be evaluated until adequate information concerning each individual site is collected. The FFA/CO Action Plan includes the schedules for addressing each of the operable units. This approach has been presented to the public for review and comment during the comment period on the agreement before it was signed by the three agencies.

28. **Comment:** Commenters state that the cumulative consequences of contamination of each subsequent no-action alternative should be included in the proposed plans for each OU. This would allow the public to comprehend and track the cumulative risk of the clean-up program as it progresses, thereby allowing the earliest detection of unacceptable risk. (T4-25, W1-16, W5-12, W6-5, W6-6)

Response: It may be possible for several sites which do not pose an unacceptable risk on their own to pose an unacceptable risk if evaluated on a cumulative basis. However, it would depend upon the percentage of exposure from each site, the toxicological effects of the various contaminants at the various sites and the exposure pathways at each site. For example, it would not be reasonable to assume that a resident obtains the majority of his drinking water from two different wells at two different locations at the same time. Overall evaluations will be conducted at two different times at the INEL. First, each WAG will have a final comprehensive risk assessment performed after all of the individual sites have been investigated and the necessary information is available to do the overall evaluation. Second, a final INEL evaluation will be done after the individual WAG evaluations are completed. The comprehensive INEL Remedial Investigation/Feasibility Study will summarize risks to human health and the environment for the INEL. Data collection and risk analysis performed at the individual OUs and WAGs will be used in the WAG 10 comprehensive Remedial Investigation/Feasibility Study to characterize the total risk posed by the INEL to human health and the environment. Additional information concerning related OUs is in Section 4 of the Record of Decision.

APPENDIX A

PUBLIC COMMENT/RESPONSE INDEX

PERCHED WATER, MOTOR POOL POND AND CHEMICAL EVAPORATION POND PROPOSED PLANS

IDAHO FALLS, IDAHO
July 20, 1992
6:30 p.m.

SPEAKERS

Lisa Green, DOE-IDAHO
Nolan Jensen, DOE-IDAHO
Joe Gordon, DAMES & MOORE
Randy Bargelt, EG&G IDAHO
Dave Hovland, DEQ
Dave Frederick, STATE OF IDAHO
Linda Meyer, EPA
Peter Sinton, DAMES & MOORE

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IDAHO FALLS, IDAHO, MONDAY, JULY 20, 1992, 6:30 P.M.

MS. GREEN: I would like to welcome everyone to tonight's meeting. We are glad you were able to make it tonight, and we look forward to a very productive meeting.

My name is Lisa Green. Tonight I'll be serving in a dual role. First, I'll be acting as moderator for the meeting. As moderator my task is to help us move through the agenda in a timely manner and make sure that everyone who wishes to has an opportunity to participate.

The other role I will be playing tonight is as the remedial project manager for DOE-Idaho. As the remedial project manager, I'll be helping to answer your questions on the project. I'll try to indicate specifically those times when I'm acting in the DOE role; otherwise, I'll be in the moderator position.

There are several desired outcomes for this meeting tonight. First is to gather public comment on the No Action proposed plans for the three projects that are on the agenda.

The proposed plans are projects

that are at that stage where DOE, EPA and the State have developed a technical recommendation for how to proceed, and we're taking comments from the public before a final decision is made on how to proceed at a particular site.

Input received during the public comment period of this meeting and written comments will be used by the agencies to evaluate their recommendation and to come to a final decision on each of the three sites.

The second desired outcome is to give you an opportunity to ask questions and inform you about the details of these three proposed plans and how they fit into the broader scope of DOE's cleanup activities at the INEL.

So basically we're here to listen to each other tonight. Take a moment to look at the agenda that you received when you entered the room tonight. As you can see, we have three topics on tonight's agenda.

The first topic of the proposed plan is the Perched Water System at the Test Reactor Area. Following the presentation on that topic, we'll have a question and answer session to clarify any information you may want to have explained in greater detail.

After we have answered all your questions, we then will take time to hear your verbal comments on the Perched Water Proposed Plan. Those will be comments for the official record for that project.

After a short break, we'll move to the second part of tonight's meeting and discuss proposed plans for the Motor Pool Pond at the Central Facilities Area and the Chemical Evaporation Pond at the Auxiliary Reactor Area.

Due to the similarity between these two projects, the technical presentation and questions and answers and the comment portion of the meeting of these two proposed plans have been combined. We did this in response to a number of public comments we received requesting that we try to combine similar topics when it's possible.

At this time I would like to introduce two individuals who are in the audience. The first is Reuel Smith, who is the INEL community relations plan coordinator. This is also probably a good time to mention that the public comment period on DOE's Community

Relations Plan has been extended to September 1, 1992. That plan establishes a process to help DOE communicate environmental restoration information to the public and help the public communicate back to DOE on those issues.

So if you have any issues related to the Community Relations Plan in general, you want to talk with Reuel, he is your man. So you have a couple hours here to corner him and ask him questions.

The second person I would like to introduce is Mike Coe. Mike, would you please stand. Mike is with the INEL public affairs office. So if you have any questions or comments that are outside the scope of these three proposed plans, you can see Mike at the break or following the meeting and he'll be happy to talk with you about those other issues.

So after each of the two presentations, questions may either be submitted in writing using the note cards you found on your chair when you came in tonight, or if you prefer, you can use the microphone, which will be brought up front here. We use the note cards for a couple of reasons. First, the cards allow the respondents a few seconds to think about the questions before they respond. Second, some members of the audience may not prefer to come up and use the microphone.

After each question and answer period there will be an opportunity for you to provide comments on the proposed plan for agency consideration. This comment period is the official comment period for putting verbal comments in the record. Comments will be evaluated for the final decision and any responses to those comments will be made available.

How to make the comments? As I mentioned earlier, one of the purposes of this meeting is to give you an opportunity to make your thoughts known to the agency. If you choose not to do so at the meeting or if you wish to submit additional comments in writing after you've given your verbal comments, the address of where to send written comments is on the back side of your agenda. If any of you have brought prepared statements here which you would like to have included in the meeting record and responded to in the Responsiveness

Summary, you may read them during the verbal comment segment of the meeting or give them into a tape recorder that we have set up in the back of the room, or give your prepared statement, if you have it written down, to Reuel Smith at the back table and that comment will be incorporated into the record.

A tape recorder is also available for anyone who would like to make a verbal comment but would rather not do so in front of an audience. In addition, you'll find on the back table there are comment forms in three colors, one color for each of the three projects. You can fill out a form tonight and leave it with Reuel at the back table or you can mail it in later.

Written and verbal comments are given equal weight in consideration of the final decision and both are responded to in the Responsiveness Summary.

Reuel, how many people have signed up at this point to make verbal comments here tonight?

MR. SMITH: It looks like on the sign up sheet we didn't have a column if they have prepared comments. We might just ask the audience to get an indication of those that have attended tonight.

MS. GREEN: We have one person.

AUDIENCE MEMBER: What do we comment on?

MS. GREEN: We haven't started the specific topics yet. These are the general ground rules for the meeting. You'll have the opportunity to comment on each of the three projects later on.

Is there anybody here who knows that they would like to make verbal comments? One, two, three, okay. If that's not the final tally, you are able to change your mind anytime before the oral comment segment for that project that you're interested in.

In general, if there is a heavy request for making comments, we will limit comments to five minutes for the verbal comment session. The comment period for these three projects runs through August 5th, 1992. So you have until August 5th to provide your comments on each of those three projects.

What happens to your comments after

you have made them? After the comment period has ended, DOE prepares a summarization of both oral and written comments that we've received during the period. The three agencies then respond to comments that are relevant to each topic in a document called the Responsiveness Summary.

Again, verbal and written comments are given equal consideration, and that Responsiveness Summary becomes part of the Record of Decision for each topic and it will be sent to INEL information repositories and to everyone who has signed the attendance register at the back table. Everyone who submits written comments or provides an address will receive the document.

We have a court reporter here tonight to transcribe the meeting. To help the court reporter, please everyone take the few moments that it takes to come to the microphone, otherwise the court reporter may not capture what you have to say for the record.

Also each time you come to the microphone, be sure to repeat your name. I believe, Reuel, the name requirement is associated with your formal comments, right?

MR. SMITH: Yes.

MS. GREEN: If you're just coming up during the question and answer period, we don't need your name.

Now, that I have said my piece here, let me introduce the agency representatives that are up here with me. To my far right is Dave Hovland with the Division of Environmental Quality. He works for the State of Idaho. And to my near right is Linda Meyer, who works for the EPA Region 10. I will give both of them an opportunity to make a few opening remarks here. In the interest of not showing proper etiquette, Linda elected to speak after Dave.

MR. HOVLAND: As Lisa said, I'm Dave Hovland. I'm the State's INEL technical manager, I work in Boise, Idaho. I'm also the WAG manager for the TRA. That's one of the proposed plans that we're presenting tonight.

I would like to introduce a couple of key State employees. My counterpart in Idaho Falls is Shawn Rosenberger standing over there.

Two of Shawn's staff are going to

be presenting information or representing the State on the other two proposed plans. The first one is Dave Frederick. Dave is the CFA manager. The other one is Tom Stoops. They both work in Idaho Falls. Tom is the ARA manager.

I would like to say that the State supports the three proposed plans, and we very much encourage public comment on the plans. After the public comment is completed, we will evaluate and address all public comments and prepare a Record of Decision for all the three sites that we're talking about tonight.

MS. MEYER: I'm Linda Meyer with the Environmental Protection Agency. I'm also the WAG manager for the Test Reactor Area. Howard Blood, who is in the audience here, is the project manager for ARA and CFA.

Basically, I want to emphasize two important points that Dave made, and that is that these decisions have not been made and your participation and input is an important part in our process. So we need your comments to help us complete the decision process. So please voice your concerns, we're interested in your input.

MS. GREEN: Thank you. With that introductory note, let's move right into the presentation of the Perched Water System at the Test Reactor Area. I'll turn things over to Nolan Jensen, who is the DOE project manager for the Perched Water System.

MR. JENSEN: Now, with that long introduction, I had plenty of time to get very nervous. Again, like Lisa mentioned, we're going to be talking about three different projects at the INEL tonight. Specifically about the proposed plans. There are copies on the back table, they are all in the same packet.

But the three projects that we're going to be talking about tonight are the Perched Water System at the Test Reactor Area, the Motor Pool Pond at the Central Facilities Area, and the Chemical Evaporation Pond at the Auxiliary Area.

Let me just quickly show a photograph of each one. This is the Test Reactor Area, and I'll show you this photograph again in a few minutes, but this is essentially east, north and these are the Waste Water Ponds.

This is the Warm Waste Pond that we talked about a year ago.

This is a photograph of the Motor Pool Pond. That's this area right here at the Central Facilities Area. This is a photograph of the Auxiliary Reactor Area, and this is the Chemical Evaporation Pond right here, the greenish area.

So those are the three projects that we're going to be talking about in very general terms. The first thing I want to do, though, I think one of the hardest things there is for us is getting this information in such a concise manner so we can help you understand what we're talking about and the reasons for the recommendations. So what I'm going to try to do in the few minutes is just briefly go over the process that we follow in coming to this recommendation.

As you know, we're doing this under the Superfund Law, these cleanups and investigations. Under the Superfund Law, when a site in the United States is thought to pose a potential risk to human health and the environment, it is placed on the National

Priorities List. The INEL was placed on the National Priorities List at the end of 1989, in December of 1989. Once a site is placed on that list, then under the law it is required that investigation be done on those sites to find out if they pose an unacceptable risk.

That investigation process is called a remedial investigation, and those investigations have been done on each of the three projects that we'll talk about tonight.

The remedial investigation -- not that the components are very difficult to understand, it's just when we do an investigation we answer a couple questions. Number one, what kind of contaminants are out there? And then a more key question, what kind of risk do they pose?

Once that investigation is done and we've evaluated the risk, then we go into your decision making process on if something should be cleaned up, and if so, how it should be cleaned up. We call that the decision making process. And the first part of that is as soon as the agencies come to a consensus on the recommendations for a site then we come out for public comment to get the public's view on recommendations and see if there are concerns or things that we need to take into consideration when the final decision is made.

Once the decision is reached, it is documented into a document called the Record of Decision. Then once that Record of Decision is reached, the decision is implemented.

Let me just take another couple minutes and explain just a little bit more about the remedial investigation process. As I said earlier, there are two key components of the remedial investigation. The first one is characterization, going out taking samples, finding out what is out there, what kind of contaminants are there at the site. Then once that is found out and it is determined what level of contamination some hypothetical person could be exposed to, then a risk assessment is done, calculations are done with those concentrations and that is used to determine what risk is posed by that site.

So in a nutshell, that's the general process that we're talking about here tonight and has been done for each of these sites.

Now, just to give a quick overview on what is considered to be an acceptable risk. This whole process is defined in what is called the National Contingency Plan. That is the regulation plan, the Code of Federal Regulation that implements the Superfund Law. In the National Contingency Plan there is a risk range that is defined.

The first one that I'll talk about is for a potential cancer-causing chemical or contaminant. What the National Contingency Plan states is that if a risk is found to be in excess of this risk range, which is one potential incident of cancer in 10,000 to one in one million, if it's above that range it is considered to be unacceptable. If it's within that range or below it, it's considered to be acceptable. That's for carcinogenic risk.

For non-carcinogenic risks, for toxic-type risks that is something like, for example, a contaminant may cause some health effect like high blood pressure, rashes or some organ damages like liver or kidney damage or something like that, then there is a value called a hazard index that is established. What that says is that if we're less than one then there is clearly no unacceptable risk posed, and one point to make on this, if it's also less than one that considers sensitive populations, like infants. So if we're less than one, we're very comfortable that there is no unacceptable risk at the site. Above one, then we need to start looking at the risk and determining if the cleanup is necessary.

Also one thing that someone mentioned that I should point out here, on the carcinogenic risk, just for a reference point, and that is the national average for incidence of cancer is up in this range, up in here somewhere.

AUDIENCE MEMBER: What is the meaning of that "one"? Is that one death per USA or one death per year?

MR. JENSEN: This one?

AUDIENCE MEMBER: Yes. What is the units on that?

MR. GORDON: That's a hazard index. I'm Joe Gordon from Dames & Moore. The one means that the value that was calculated out at the site is compared to what is regarded by EPA and other internationally recognized committees as the threshold value, and those two values are compared and if their ratio is one, then that means they are equivalent.

MS. GREEN: So there is no unit on it?

MR. GORDON: Right, it's a unitless quotient.

AUDIENCE MEMBER: That means one possibility of an adverse effect for how many people?

MR. GORDON: No, this is for non-carcinogenic toxic effects. So the "one" means that the two values were equivalent, because they are divided by each other.

AUDIENCE MEMBER: It doesn't tell us anything about risk, in other words?

MR. GORDON: No

AUDIENCE MEMBER: Thank you.

MR. JENSEN: Okay. That was a very quick overview of the process that we go through to determine if a site poses an unacceptable risk. So maybe since we had one question, if there are any other quick ones before we go on just on the processes that we're following.

AUDIENCE MEMBER: Where is the uncertainty calculation for the hazard index in your displays of the hazard index?

MR. GORDON: Is the question where is the uncertainty in the hazard index?

AUDIENCE MEMBER: Where is it treated in your presentation of the hazard index? Is the one ratio with the uncertainty incorporated in the calculation?

MR. GORDON: Yes.

AUDIENCE MEMBER: A question of format. It seems to be a legalese term to say, "No unacceptable risk." Can't you just say, "An acceptable risk?" I find that in the reports on all three of these you come up with the double negative, which I find confusing to many of the people.

MR. JENSEN: Good point. That's just the way it's been done.

AUDIENCE MEMBER: It is most likely an EPA term.

MR. JENSEN: I don't know if I can blame that on EPA or not, I really don't. That's the way we've done it, and that's the message we're trying to get across is that we didn't find a risk to be unacceptable.

What I'm going to do now is spend a couple minutes talking about -- oh, wait, I wasn't done.

Now I want to explain for a minute how this agreement is set up between the agencies. We are doing these investigations under what is called the Federal Facility Agreement and Consent Order. It's an agreement between the Department of Energy, the Idaho Department of Health and Welfare and the Environmental Protection Agency.

The way this agreement was set up, since the INEL is a large complex with several different facilities and a lot of different things to look at, the National Contingency Plan talks about dividing large complex sites into what is known as operable units. So you can look at it in a bite size way of looking at it, I guess.

So what was established -- and I don't know if you noticed, but when people were introduced, they were introduced as WAG managers. Well, that stands for Waste Area

Group, and the INEL has been divided into ten Waste Area Groups. Nine of them are essentially the different facilities out at the INEL. The WAG 10, Waste Area Group 10 is, I guess it kind of fills in all but the holes in the Swiss cheese, it is everything else, the miscellaneous sites, and it's also a key part of the Waste Area Group 10. That's when a final evaluation will be done on the Snake River Plain Aquifer for the entire INEL.

Once the Waste Area Groups were established -- still that's a lot of different things to look at in each one of those Waste Area Groups, so the Waste Area Groups were then further divided into what we're calling operable units. Just to show you the three operable units that we are talking about tonight are these, Waste Area Group 2 is the Test Reactor Area and so forth.

So what happens then as we go through this process? We look at individual contaminants sites. Three of those we will be talking about tonight. Then after we look at each of the smaller units, then there will be an evaluation done, a comprehensive evaluation done at each of the Waste Area Groups. Then once the evaluation is done at each of the Waste Area Groups, that then is rolled up into this comprehensive WAG 10 remedial investigation, which will be done focusing on the Snake River Plain Aquifer and looking at cumulative effects.

So I guess the idea here is that we are -- you have to look at all the little pieces in order to be able to roll them up and look at the cumulative impacts.

Now on to the Test Reactor Area. The first one we're going to talk about tonight is the Perched Water System at the Test Reactor Area. It's Operable Unit 2-12. Specifically, what this investigation was focused on was looking at the perched groundwater beneath the Test Reactor Area -- and I'll talk about that in a minute -- in finding out what the effects of that perched water is on the aquifer. Does that perched water pose a risk on the aquifer that is unacceptable?

Here is another photograph of the Test Reactor Area. What happens is, as I pointed out earlier, there is a series of wastewater ponds to each side of the Test

Reactor Area. This is the Warm Waste Pond again, this is the Cold Waste Pond right here, we'll be talking about that in a few minutes. But as wastewater comes out of the facilities at the Test Reactor Area, it is placed into these ponds. This is the sewage right here, water that comes out of the sewage treatment plant. But as wastewater is put into these ponds, it seeps into the subsurface. As it goes down it encounters layers in the subsurface, layers of sediment that are relatively impermeable. The water doesn't pass through them as quickly as it does the other layers.

So what happens is it encounters these layers, it slows the water enough so it perches or it mounds over those layers. And under each of these ponds there are two general perched water bodies, under each of the individual ponds at about 50 feet there is a small body of perched water that forms. Then as it seeps through that one at about 150 feet there is another layer of relatively impermeable sediments that slows it, so it creates this larger perched water body at about 150 feet and then the top of the Snake River Plain Aquifer is about 480 feet in the area of the Test Reactor Area.

So essentially what we're talking about is do these two bodies of water, as they seep through the subsurface and reach the aquifer, is that going to cause a problem?

This is the larger body. Again, as I mentioned, each of the ponds has a smaller body of perched water beneath it, if there is water going into the pond, but then they reached that lower 150 foot level and this is the outline, approximate outline, of that deep perched water body.

These little black dots all over this photograph show the monitoring wells that are installed. They are installed at different depths. Some of them go to the aquifer, some of them go down to the deep perched water, some to the shallow. But this is basically where we got the information to do this investigation risk assessment.

Again, the questions that we're answering with this investigation are: What is out there? And this photograph, again, kind of shows this is where we got the information to find out what is out there. Now we need to answer the question: Okay, now we know it's there, how bad is it? What I'm going to do now is turn the time over to Joe Gordon from Dames & Moore who conducted the risk assessment calculations for this project. Joe.

MR. GORDON: Thank you, Nolan. This diagram is supposed to be a representation of the risk assessment process. The first step in the risk assessment is to evaluate the data and identify which contaminants might be a concern at the site, and then this data is applied essentially in two parallel pathways here. One is to look at the toxicity of the contaminants, both from a carcinogenic and non-carcinogenic standpoint, then to perform an exposure assessment, which involves how the water and contaminants move through the soil, and then the intake by humans and ecological receptors. Then those two parallel paths are pulled together at the end during the risk characterization where you combine the total intake with the dose response.

The data that was obtained during the site characterization is screened down to identify those contaminants, which are thought to contribute to more than one percent of the risk at the site. So that way we can focus the risk assessment on those contaminants that really are going to drive the risk. The contaminants that are shaded in here are the ones that turned out to dominate the risk.

Then in the exposure assessment, we developed an exposure scenario in which we have a hypothetical on-site resident farmer who goes out and lives out at the Test Reactor Area, installs a well directly below the Perched Water System in the Snake River Plain Aquifer, irrigates his crops, feeds his livestock, eats the crops, livestock, and consumes all his water from that well.

In addition, we evaluated non-human ecological receptors, We have looked at vegetation. We evaluated vegetation by looking at the uptake of groundwater. We looked at herbivores through the consumption of groundwater, direct contact with soil and ingestion of groundwater. Then we looked at carnivores through all the same pathways with the addition of ingestion of animals out at the site.

To do this we constructed a groundwater model. The purpose of the groundwater model was to predict the flow of contaminants and water from the Perched Water System to the Snake River Plain Aquifer over time. One of the findings of the groundwater modeling exercise was that the deep perched water body would completely disappear within seven years of the shutdown of the Cold Waste Pond.

So the bottom line here was that the risks of carcinogenic contaminants out at the site 125 years in the future were one in 179 million, which you see is well into the acceptable range. In addition EPA, in their evaluation of the risk assessment, calculated when would a hypothetical resident be able to live out there and receive an acceptable risk? And we calculated that could be in the year 2000, which we show is ten years there.

The hazards were also calculated and also found to be in the acceptable range for both the ten and 125 years scenarios.

So in summary, there currently are

no risks from perched water out at the site since the site is restricted. And for an on-site resident farmer living at the site, the risk would fall within the acceptable range within ten years.

So I guess with that I'll turn it back over to Nolan.

MR. JENSEN: Just in summary here, based upon the results of the investigation, the contaminants that were found to be there and the concentrations that were found to be there and the results of the risk assessment, it was determined that this site -- can I say poses an acceptable risk?

AUDIENCE MEMBER: I would hope so. Thank you.

MR. JENSEN: However, given the fact that this is based on a computer model and concentrations that are predicted by that model, we're going to go ahead and monitor that system to make sure that the predictions that we made with that modeling effort are accurate.

So what this says is we're not planning on going out and doing cleanup, we would recommend that that not be done; however, we would recommend that this monitoring be done and that a periodic review, which would be conducted by the agencies, meaning the Environmental Protection Agency and the Idaho Department of Health and Welfare, that that would be done periodically just to assure that the assumptions are correct, that the predictions we made are correct and that the recommendation that we made is correct.

So with that, I will turn the time back to Lisa to moderate the question and answer period.

MS. GREEN: Before we go on to general questions and answers on the TRA Perched Water, are there any specific questions on this presentation while we have Nolan under the spotlight here that you might want to ask him specifically?

With that, we'll open it up to the general question and answer session on the TRA Perched Water Project.

Please pass your note cards to the end of the aisle so that Reuel and Erik Simpson can collect them. If you have additional note cards that you want collected during the session, please raise your hand. We'll begin with the note cards to get things rolling here, then the respondent will read the question out loud and after reading the card, if there is some clarification required of the questions, he or she will ask for clarification.

If the panel's answer to a question may lead to another question which you would like to ask, feel free to follow up questions either at the microphone or using another note card, whichever you prefer. For those of you who do come to the microphone, out of fairness to the panelists and everybody else here, if you would please ask one question at a time so we can be sure that all your questions are answered. We'll take the first question.

AUDIENCE MEMBER: Blan Holman from Pocatello. I have a question on page A-7 of the TRA plan here, there are some mean concentrations. In strontium-90 it appears to be a little different because at the aquifer mean concentration in 1990 it's .0019, then the predicted aquifer concentrations for 125 years is .29. I was just wondering why that is. Is strontium special? Are the numbers mixed up or what is the maximum concentrations of strontium between the two ranges or is it ever greater than .29?

MR. JENSEN: This is Peter Sinton. He was the one that did the computer modeling work. Rather than say something incorrect, I will let him take the time.

MR. SINTON: Strontium is not special. It actually peaks at an earlier year. It comes up to a higher value than you see, but there is a higher value in between. I don't know exactly where it ends up but that is pretty close to what it is.

AUDIENCE MEMBER: Is that --

MR. SINTON: Not necessarily, it's not much higher than that. It's not significantly higher than that.

AUDIENCE MEMBER: It's on the downswing now.

MR. SINTON: Yes.

AUDIENCE MEMBER: I have a question.

MS. GREEN: Is this for the risk assessor while he's up here?

AUDIENCE MEMBER: Yes. Can you

explain why it would increase at all from its present value?

MR. SINTON: It increases because it's absorbed in the sediments beneath the Warm Waste Pond, and it moves a little bit slower than some of the other contaminants like chromium or tritium, and so it does come through at a later time since it's moving slower. That's why it is predicted to come up a little bit later on.

AUDIENCE MEMBER: I see. Then where is the measuring point in this aquifer? It must be well downstream from where the downflow -- from where it's entering then.

MR. SINTON: Actually, it's not. It's very close actually to where the Warm Waste Pond is. I believe that would probably be the concentration that is indicative of several of the wells that are right below the Warm Waste Pond.

MR. GORDON: One clarification point is that these are predicted values, these are not measured values, so this is a predicted concentration directly below the Perched Water System.

AUDIENCE MEMBER: Does that value take into account the decay factor for strontium?

MR. SINTON: It takes into account the decay in the water.

AUDIENCE MEMBER: Why does the strontium move slower?

MR. SINTON: Strontium moves slower because atoms have characteristics, specific characteristics, so when they come into contact with soil, each of them behaves slightly differently. Strontium-90 in this case moves slower than tritium.

AUDIENCE MEMBER: Because it's absorbed in soil?

MR. SINTON: Yes.

MS. GREEN: The additional answer was because it absorbs in soil. We need to try to use the microphone, please, if you don't have a loud voice, or use a note card.

AUDIENCE MEMBER: The reason I asked that is on page A-6, the second column, second paragraph, you define mean values. The question gets back to: Over what area was the aquifer value of mean concentrations determined?

MR. SINTON: At the black dots that you saw on the one slide, all of the wells that are shown on here, these black dots, some of them are in the deep perched zones, some are in the Snake River Plain Aquifer. None of these wells are in the shallow perched zone, which Nolan talked about that little bubble. These are all either in this bigger potato-shaped thing or down in the Snake River Plain Aquifer. These wells were the ones that were used to determine or to estimate the mean aquifer concentrations. Some of them do not have any detect values, like for americium, there is no detect in the Snake River Plain Aquifer. So there is really no measurable amount of americium down there.

Do you have anything you want to add?

MR. GORDON: No, the only thing I would add is that it's basically -- you're asking about the Snake River Plain Aquifer? The three wells at the top, I believe, are the ones that are in the Snake River Plain Aquifer, which were not used as part of that mean. Those are upgradient wells, these three right here.

MS. GREEN: Any other questions?

AUDIENCE MEMBER: Are you still modeling the flow in the aquifer as though it were homogeneous flow, or is that a flow in a homogeneous medium as opposed to piping and channeling?

MR. SINTON: The flow in the aquifer was not -- well, it was considered in the model, but not considered as a key focus in the model. That is, we looked at modeling concentrations from the ponds down to the Snake River Plain Aquifer, so we didn't look at transport away, if you will. The answer is yes it was homogeneous, but it wasn't the focus of the model.

MS. GREEN: That was because the risk was assessed at the point directly beneath. It wasn't assessed down gradient, so that wouldn't be a factor in the risk assessment.

That was my DOE hat, by the way.

Any other questions? Note cards, Reuel?

MR. SMITH: I don't have any cards. Peter, I just wanted to say would you like to join the table up here.

MR. SINTON: Sure.

AUDIENCE MEMBER: This question is for the State. We're told that monitoring of the Perched Water System and Snake River Plain Aquifer as well as periodic reviews will be conducted by EPA and Idaho Department of Health and Welfare, and details for development of the proposed monitoring plan and criteria for termination of the reviews will be outlined in the Record of Decision.

At a briefing in Pocatello, which was not attended by either one of the regulatory agencies, we did ask that that plan be available before the Record of Decision, and the State of Idaho's representative said that an attempt would be made to have that plan available this evening. Is it available?

MR. HOVLAND: Could you let me know who that was?

AUDIENCE MEMBER: It was Dean Nygard.

MR. HOVLAND: I wasn't at the meeting.

AUDIENCE MEMBER: We had a speaker phone.

MR. HOVLAND: I can tell you that we're working towards developing a plan right now and we're going to be meeting with EPA and DOE and various consultants to develop all the parameters and all the details of that plan.

So I can tell you we are developing it. The actual plan is not due until 21 days after the Record of Decision is signed as per the agreement, but we are developing it through time.

AUDIENCE MEMBER: Well, my understanding from the Pocatello briefing was that the people attending the briefing, at least, had been assured by the State of Idaho that the monitoring plan would be available before the end of the public comment period. Thank you.

MR. HOVLAND: You had mentioned basically that it would be available tonight, which is something that I'm not aware of.

AUDIENCE MEMBER: But there is a difference between tonight and 21 days after the Record of Decision.

MR. JENSEN: Do you want me to add a little to that?

MS. GREEN: Nolan was on the telephone end of that technical briefing.

MR. JENSEN: I don't remember the exact promises. I do know we talked about the fact that it will be done by the Record of Decision. And I guess one of the things that is considered here, until we get comfortable, some comfort that this is, you know, the right recommendation, we're not going to go clear into the development of that thing.

But basically what we have done, and today, in fact, Dave and Linda today have spent some time with Peter on talking about what questions that monitoring should answer, which wells. We have come up with a recommendation that there are about ten of these wells that probably should be monitored.

Another question here, by the way, is what periodic monitoring at TRA perched water means, does that mean once a year, once a decade or what? What is going on there is, I guess, the first question is every once in a while or routinely under another law, RCRA monitoring is done on a quarterly basis, every three months. Peter, in fact, did some statistical looking at how often that does need to be done. Does it make a difference if you do it quarterly or bi-annually?

So what we're doing right now is discussing what is the right frequency? How often should these reviews be done? The National Contingency Plan also talks about five year reviews, at least every five years, so that would be the minimum. One of the things that needs to done during that review is not only just monitoring the water, but like we said, we're planning on the TRA Warm Waste Pond being gone next year. They are replacing it with a new lined pond. So one of the first things that needs to be done is come back in, say, a year or two, and look and make sure that that pond is gone and evaluate that. So there is more than just the aquifer that needs to be looked at.

Did that give you an idea?

AUDIENCE MEMBER: Well, I guess I still don't know when the monitoring plan will be available to the public. And maybe the answer is the monitoring plan will not be available.

MR. JENSEN: Dave and Linda talked

about that we need to have that fairly well established by the time the Record of Decision is out. Whether the actual plan will be out by then, I don't know. We really haven't got that far.

MR. HOVLAND: I can tell you that I'll certainly talk to Dean to see what his intent was in his discussion with you on the call. If you can leave me a phone number so I can get back to you. Basically, this week we're going to be out at public meetings all week so I'll be able to call you next week at the earliest.

AUDIENCE MEMBER: If I may, to follow up on Beatrice's comment. The very title of the paper that you sent out in the mail to us is the proposed plans for monitoring the Perched Water System at the Test Reactor Area.

So I can understand why there is a lot of interest in what this plan will be. But that will not be part of any discussion as I understand it with the public. That's the impression I'm getting tonight.

MS. GREEN: If I can put on my DOE hat again. At this point in time that's correct. I guess there is always room for public comment on the project regarding the availability of that plan for public review. I'm not exactly sure how it would fit into a legal process.

MR. HOVLAND: As I mentioned before, the scope of work for a monitoring plan is due 21 days after the ROD is signed. And like Linda and Nolan have mentioned, we're basically putting together that plan now and evaluating different options for the type of monitoring, the type of contaminants that would be appropriate, but it is a key part of this and we're developing it right now.

AUDIENCE MEMBER: What groups currently monitor this area? What constituents do they monitor for it, and what periods does this monitoring occur at?

MS. GREEN: Nolan, can you address that?

MR. JENSEN: You should have just told us. You probably know better than anyone.

Basically, the aquifer is monitored by several individuals. EG&G is monitoring at the Test Reactor Area from the standpoint of are the drinking water wells producing clean water. That is done under the Safe Drinking Water Act. As most of you are aware, I think, the U.S. Geological Survey does an independent monitoring of wells all over the INEL. And TRA is one of the areas that they are looking at right now, as well as going back and looking at some of the old monitor wells and making sure that the wells are still adequate monitoring devices and things like that.

So the USGS is doing it, and then the State INEL Oversight office is doing monitoring out at the INEL. So there are several groups who do monitoring especially of the aquifer in general. But this monitoring would be specific to answering the questions of: Is this decision or recommendation that we're making, were the assumptions correct? Were the predictions correct? And we may use data from that other monitoring to answer that question.

AUDIENCE MEMBER: To be a little more specific, the majority of the wells completed in the perched water, in the deep perched water are sampled either semi-annually or quarterly, and a small fraction of them annually, and the wells pictured -- the dots illustrated that are in the aquifer, they are either monitored semi-annually or quarterly or for some wells on a monthly basis. So all wells, generally all the dots illustrated are currently part of the monitoring programs, which do look for tritium and which do look for chromium and also do look for strontium-90. So it is being monitored. Like the USGS monitoring that there is really no end in sight for the monitoring program.

MR. JENSEN: One of the things we might consider is to just use that USGS data. If we look at that data, and we believe that that is adequate data for our purposes, then maybe we would work out some system where the USGS would make sure that they get the samples that we need when they do their monitoring or something like that.

But first of all, we have to decide what we think is right to do and then we'll look at the best way to implement that. USGS could be part of that implementation.

AUDIENCE MEMBER: Where are the State's samples analyzed?

MR. HOVLAND: Are you referring to the Oversight monitoring?

AUDIENCE MEMBER: I presume the gentleman here, Mr. Jensen, alluded to the fact that the State was getting samples.

MR. HOVLAND: That's right. I'll let Flint answer that. Flint is part of the INEL Oversight Group, which is a different State group than the group than I'm in, the Division of Environmental Quality.

MR. HALL: The monitoring that he's referring to is a couple of what you might call one-time shots, which might lead into -- based on what our sampling showed, might lead into some longer term investigations. The analyses for radionuclides that we will be conducting from samples I'm currently preparing myself, those analyses will be done at Idaho State University's radiological lab and chemical analyses will be done at the State lab.

MS. GREEN: Any other questions?

AUDIENCE MEMBER: Is that Idaho State Lab in being or is that being proposed?

MR. HALL: The plan is an investigation at first and it is composing the project plan. There is a previous sampling of last fall in which I personally sampled production wells and sampled them for several constituents, tritium as well as volatile organics. And the inorganic parameters, I conducted that sampling again last fall, and that involved a production well at TRA, which is completed in the aquifer. And the sampling plan for this fall is still planned. It hasn't occurred yet, but it is a project that I'm working into more of a background investigation, not just looking specifically at those wells, just to see what values are there rather than looking at those wells to come up with a qualitative decision, qualitative look at how that perched water affects the groundwater and how it affects, specifically, the majority of the wells pictured on this diagram that are in the aquifer.

AUDIENCE MEMBER: That doesn't answer my question, though. Suppose a person draws a water sample tomorrow and takes it down to the University, can you analyze it within a week?

MR. HALL: Well, it depends on how

many samples he's working on. He can take a tritium sample, and for one individual tritium sample it would take nearly a 24-hour period to analyze.

AUDIENCE MEMBER: Fine, but the laboratory is in being, on line, working?

MR. HALL: It's working.

MR. HOVLAND: I might add that any State sampling at the INEL goes through a very detailed QA/QC review by an internal committee. The internal committee has representatives from the State lab and various programs of the State.

Basically, we do that because not only do we want to make sure that the quality assurance project plans are appropriate for the type of sampling that the State is doing out there, but we also want to make sure -- and we do periodic reviews of laboratories for the intended analytical work that Flint is talking about. So basically it's a program that ensures that the data quality objectives are being met under the proposed sampling plans.

AUDIENCE MEMBER: I guess my question still comes back to the hardware, and not to committee work.

MR. HALL: Yes, the lab at the University of Idaho does exist and has been in operation and has proven itself to be very reliable. And additionally the people involved in running that lab are -- hadn't realized until recently how well thought of in the scientific community they are. So it is an established lab. It is a lab that has been in operation for several years, and it is a lab that has been shown to produce very good results.

MS. GREEN: Any other questions?

AUDIENCE MEMBER: Do you mean Idaho State University?

MR. HALL: Yes, he just corrected me. It's Idaho State University. I get confused since I have been at both of U of I and Idaho State for education. I mix them all together. But yes, Dr. Bern Graham of the College of Pharmacy is at Idaho State University. And they also produce a periodic report that is sent to the State to detail their monitoring and their work and their quality assurance.

MR. JENSEN: I have a question on a card, and that question is: How much did the

Remedial Investigation cost as a rough estimate?

A little over a million dollars. If we included DOE and the State and EPA, total, a million and a half, something like that.

MS. GREEN: Does that include, Nolan, the work sampling done under COCA or is that since the FFA/CO was signed?

MR. JENSEN: That's from our cost account with EG&G over the last year and a half. So if you consider the evaluation of the sampling done before that, who knows, maybe two million, something like that.

MS. GREEN: Lois has been on this project for a couple years. Lois VanDeusen works for EG&G. Do you have a better feel for a total project cost?

MS. VANDEUSEN: I think Nolan is right, there was about $800,000 spent before and he's right on the numbers.

MS. GREEN: Thank you, Lois.

Any other questions before we begin the official comment period here?

AUDIENCE MEMBER: I have a question on the table. I was curious about chromium, that is, under the table it indicates the aquifer.

Can you guys hear me?

MS. GREEN: Could you please come up to the microphone so everybody can hear.

AUDIENCE MEMBER: I just had a question on the table A-7. Chromium is listed as exceeding the drinking water standards under the aquifer in 1990, and we just had reports about how frequently the aquifer is studied, and to get on to my question which was: What are the numbers that are coming out of there, not out of the model, but out of the recent laboratory studies, perhaps at ISU they are coming out quarterly, what is the most recent sample that indicates the aquifer concentration of chromium at this point, and not mean, but peak, and then did that reconcile appropriately with the model? It's two years old in the program.

MR. SINTON: It sounds like there is more than one question here.

AUDIENCE MEMBER: First of all, is there any data available at this point about what, as this gentleman raised about the frequency of the studies and lab analyses that are turned in on chromium, are we talking about in 1990? I guess I was curious as to what the results are now, the most recent quarterly reports on chromium. What it peaked at and did that reconcile with the model in question?

MR. SINTON: I can't speak to concentrations right now. I haven't seen any recent data.

MS. GREEN: You developed -- correct me if I'm wrong, I'm putting my DOE hat on again here -- you developed -- or inputs to the model based on historical data up to that date; is that correct?

AUDIENCE MEMBER: Up to 1990?

MR. SINTON: That's correct, up to 1990.

AUDIENCE MEMBER: What good is it to get this data quarterly if they are not available now and how are they getting fed back into your model to reconcile appropriately? For all we know here today, the model needs to be upgraded today to reflect the aquifer concentration, for example, chromium, which already exceeds the drinking water standards by 48 micrograms per liter in 1990.

MR. SINTON: One way to answer that is: Well USGS-65, which has been a well that has been quite indicative of concentrations in the shallowest part of the Snake River Plain Aquifer, the concentrations of chromium and tritium have been decreasing steadily and that's a statistically significant decreasing trend. That trend is independent of any model or simulated decrease. And I can't speak for present day, but the model predicts the same sort of decrease with time and at the same order of magnitude in the same range, and so without knowing what the data is for 1992, I would say it's probably predicting that decrease that I would expect to see right now.

AUDIENCE MEMBER: Would you say then that given the fact that you reported that all of those concentrations, like the chromium, for example, and tritium decreased in concentrations since 1990, perhaps you're aware I have all the chemical constituents listed which decreased or, for example, are some of them increased since 1990, and did it reconcile with the model?

MR. SINTON: I'm trying to break

this down into subparts. One of the contaminants of concern predicted by the model was cadmium. We don't have a complete historical record on cadmium concentrations in the aquifer. It is one of the contaminants that increases over time, then decreases later on, because as like strontium-90, it moves slower than some of the other contaminants. So at this point the model doesn't necessarily reconcile historically with that particular contaminant of concern. We don't have a complete record for it, but for tritium and chromium, which are two very good indicators of how rapidly contaminants move in the environment and give us some measure of certainty, we have good agreement with the model and the observed values.

Does that answer your question?

AUDIENCE MEMBER: I think so. Thank you.

MS. GREEN: We had another hand over in this side of the room.

AUDIENCE MEMBER: This gentleman's question brings up another one to my mind. I'm wondering since the chromium in the deep perched zone is responsible for contaminating the aquifer, how can the aquifer concentration be higher than the deep perched zone on this table?

I'm comparing page A-7, b and c, so with dilution, which you have on -- this 6,000 foot front of water moving past the wells should provide dilution and the mean aquifer should be lower than the deep perched mean concentrations.

MR. SINTON: For chromium, most of the chromium discharge occurred in the early -- I don't remember the exact time periods for chromium discharge, but it was discontinued a number of years back, I believe in 1972, but I'm not sure. This is the reason that the concentration in the deep perched zone is smaller than that in the aquifer. The chromium is moving through as a front or a slug, if you will, and in the aquifer the highest concentration has actually already gone past and is now decreasing, but it's still higher than what is in the deep perched zone. So the chromium that is mobile has moved through the deep perched zone in the aquifer and is now dissipating in the aquifer.

Was that clear?

AUDIENCE MEMBER: Physically I

can't visualize it.

AUDIENCE MEMBER: Peter, you might want to mention it's being diluted by the Cold Waste Pond, which is free of chromium. In other words, that water is moving to the Perched Water System.

MR. SINTON: That is another aspect of it. The Cold Waste Pond, which does not have chromium in it, that particular water does not have chromium in it. The chromium in the deep perched zone is being diluted by the discharge to the Cold Waste Pond and has been since 1980. So that's another reason why that concentration is smaller than that in the aquifer.

MS. GREEN: Do we have any other questions before we take oral public comment?

Nolan has a card with three questions on it.

AUDIENCE MEMBER: The first one is: Has the model been validated with anything less than 1990 data -- or anything since 1990?

MR. SINTON: Not since 1990 data, no. It's been a while since that was done.

MR. JENSEN: The best I can do on that is in the meetings we had on the project, USGS has been in on those and Larry Mann basically has made the statement that, yeah. That's kind of weak, I guess.

MS. GREEN: If I can put my DOE hat on again, this project was started a year or so ago and so that would have been 1991 right there, and there is generally a time line between getting the data reported and when it's collected, and a lot of times it's easily a year between when the USGS samples and when they report their data. That could be a factor between the apparent time line or so.

Back to being a moderator, any other questions?

MR. JENSEN: The next one is: How was the method of validation performed?

MR. SINTON: Can I ask for what you're looking for in terms of validation? Are you talking about calibration or validation?

AUDIENCE MEMBER: Validation. But it falls back again, 1990 data that was used to generate the model; is that correct?

MR. SINTON: No, actually the 40 years of data for chromium and tritium, the 40 years of data that was collected since the beginning of the site operations.

AUDIENCE MEMBER: What you have up to that point was used for generating the model?

MR. SINTON: That's correct.

AUDIENCE MEMBER: And it has not been looked at since that time with more recent data?

MR. SINTON: That's correct.

MR. JENSEN: The last question on this card is: Are additional wells being considered under the proposed monitoring program?

All I can say on that is we did not propose to the EPA and the State that we install additional wells for this monitoring. Again, we haven't reached a conclusion on that so I wouldn't dare say that we made a decision.

MS. GREEN: Any other questions? Reuel, I can see your hand waving.

AUDIENCE MEMBER: On the risk assessment, why did you use -- looking at someone who lived at the site for 30 years, rather than 70? We're always told in Pocatello that we can live with the smoke stacks at FMC for 70 years and I kind of thought that was some sort of special number.

MR. GORDON: They are all magic numbers. The 30 years is the 90 percentile of how long someone lives at one residence. So it's a value that's typically used and generally accepted throughout the risk assessment community.

AUDIENCE MEMBER: So EPA doesn't use 70 years?

MR. GORDON: No. This is the reasonable maximum exposure. Seventy years used to be used to calculate the maximally exposed individual under an old guidance.

AUDIENCE MEMBER: But we don't use 70 years anymore, we use 30?

MR. GORDON: Right, 30.

MS. GREEN: Any other questions or cards?

AUDIENCE MEMBER: If no one else wants to jump in here, I will take a stab at it, although I'm not in risk assessment by trade. I'm Howard Blood from EPA. I have the other two projects that are being discussed here tonight.

I think the concept that was presented, but perhaps not clearly expressed, on hazard index, which is the non-carcinogenic risk, which is one that is difficult only because it's presented differently than the cancer risk. The hazard index is based on what is called a reference dose. A reference dose is a dose that has been established as the dose that even a sensitive individual in the population could be exposed to on a continuing basis and demonstrate no adverse effect. So when we do our comparison to what concentrations we find at the site, we compare the two numbers and that gives us that unit less hazard index. And that unit less hazard index essentially compares the concentration found at the site to the concentrations that have been established as creating no adverse effects. So if you have a higher concentration than that, you're going to get a number greater than one.

If you have a concentration less than the reference dose, then obviously you fall on the other side of one and it's a clear decision.

Now, the hard part, I think, is the part that was brought up, I think in a comment from someone sitting behind me, about where do you insert the uncertainty on that? The uncertainty comes before we develop, or as we're developing the reference dose. So those numbers have just as much uncertainty in them as, for example, the cancer risk numbers, although that doesn't perhaps come through as clearly. Does that make it clearer or did I manage to muddy things up completely?

AUDIENCE MEMBER: I assume you mean the maximum dose that causes no effect? Not just any dose.

MR. BLOOD: Where you go is when exposure studies are done, they look for a breaking point, it's called the No Observed Adverse Effect Level. That means that we can feed that to you and you never show any adverse effects, and that's the number that we go for.

Now, obviously a lot of these studies are done on other species, so at that point the decision has to be made how you extrapolate from animal data to human data. Usually we do that by adding safety factors so that the number is extremely conservative when we get to a point where it's a public reference dose.

The other thing that I would like to mention, I think Beatrice has raised the question of the monitoring plan, and I think it's just as important to make sure that everyone recognizes that the monitoring plan, even though this is a No Action, is part of the response that is based on the No Action decision. And we don't have a No Action decision at this point. We have a No Action recommendation.

Therefore, EPA is willing to discuss and come to some conceptual approach to this, but we don't recommend or sponsor or encourage extensive design on this, because if as a result of public comment, we choose a different remedy, then any effort that would have been put into that monitoring plan may have been an inappropriate effort since we didn't have a commitment to go that way. So that's an important concept to keep in mind on proposed plans.

MR. HOVLAND: However, I still will chat with Beatrice on the break to clarify her questions to get back to what she envisioned would be available tonight at the public meeting.

MS. GREEN: Thank you, Howard and Dave.

AUDIENCE MEMBER: I would like to ask whether the EPA modeling, which seems to focus on doses to individuals and the dose responses for individuals, if there is any attempt to model concentration in the food chain prior to a whole population dose and any attempt to model population responses?

MR. GORDON: Are you asking -- I can't figure out exactly which question you're asking. Are you asking do we model the food chain to evaluate the population dose or is there an attempt to --

AUDIENCE MEMBER: What we have here is a situation where the aquifer is being gradually contaminated by industrial strength dumps and it's being used down aquifer for agriculture and for culinary purposes and there is great potential for large scale, low level exposure to things that are put in the aquifer. We all drink the water from the aquifer. We all use things that are grown in the aquifer, and the cattle all eat alfalfa that is grown with pumped water from the aquifer, et cetera.

We don't, however, drink the water directly from the aquifer so much as receiving things from the food chain that has the aquifer for one of the primary sources of all of our water. And the question is: Is any attempt made to model what is really going on in potential food chain concentrations and low level exposure beyond what you can see in an individual exposed to direct consumption of these contaminants?

MR. GORDON: The risk assessment that was performed for this site, for the Perched Water System, was meant to answer the question: Should we clean up the Perched Water System?

Okay. The water in that deep perched zone, there is roughly a billion gallons there, should that water, does that pose an adverse health effect to someone living out there? What we did to model that was to --

AUDIENCE MEMBER: My question is not to someone living out there, but to the population living out there. It's a different question, of course.

MR. GORDON: Well, the short answer is no, population doses were not calculated for the site. But I think to just carry that one step further, the Snake River Plain Aquifer itself will be evaluated in the WAG 10 risk assessment when they do a site-wide Snake River Aquifer evaluation.

MS. GREEN: If I can jump into that response with my DOE hat on. The aquifer will also be looked at for cumulative effects from the Test Reactor Area in general under that WAG 2 comprehensive RI/FS. The concept under this remedial investigation was to look at the risk at close range at the unit, and with the logic being that there is less risk further away from the unit from the follow-up remedial investigations at the TRA level than at the WAG 10 level. I think we'll be addressing cumulative risk that you're posing.

AUDIENCE MEMBER: To carry that question a little further. In the investigation that you did in assuming that the person living at the TRA site some years hence gets all his food from either livestock or vegetables grown from water at that site, does that risk assessment include the bioconcentration of various elements from the water to the plants to the animals to the person? Does that include that bioconcentration?

MR. GORDON: Yes, it does.

AUDIENCE MEMBER: Does it include the air contamination and other things?

MR. GORDON: The inhalation pathway was not evaluated for the Perched Water System. It was qualitatively evaluated at the beginning and found not to pose a significant risk.

AUDIENCE MEMBER: I didn't mean from that site, I meant from the whole.

MR. GORDON: No, this is only supposed to answer the question about the health impact of the Perched Water System and its impact on the Snake River Plain Aquifer directly below the site there.

MS. GREEN: Any other questions?

With that, we'll begin the portion of the meeting designed for you to provide your oral comments, oral testimony to the agencies regarding the Perched Water Proposed Plan.

During this portion of the meeting, the agencies will listen to your comments but will not respond to them tonight. They will be evaluated and then responded to in the Responsiveness Summary for the Perched Water Proposed Plan.

I'll remind you again that the tape recorder is in the back and is available for anyone who would like to record a comment not directly in front of the audience here. If someone makes a statement for which you would like additional information in order to clarify the comment, please be sure to ask the speaker for that clarification. And the purpose of this session is to make sure that the agencies understand what the individual making the statement is actually saying.

With that, Reuel, do we have any other indication of additional people wanting to make verbal comments here tonight on TRA Perched Water?

MR. SMITH: No.

MS. GREEN: I'll ask for volunteers, then. Start from the back to the front is as good as any order, I guess.

AUDIENCE MEMBER: My name is Blan Holman. My address is 310 East Center, Pocatello. I am a native of Columbia, South Carolina, and the Savannah River Site is a familiar neighbor. For the past year, I have been with the Natural Resources Defense Council, where I spent a good deal of time focusing on the Idaho Chemical Processing Plant and its high-level waste. I am working with the Snake River Alliance this summer and am speaking this evening on behalf of its 1,200 individuals, family and business members.

Over three years ago, the Department of Energy promised to begin environmental restoration at the Idaho National Engineering Laboratory. Since that time, a steady stream of nuclear waste has continued to enter Idaho. Since that time, not a teaspoonful of INEL contamination has been cleaned up.

In the meantime, government agencies have effectively undermined their promises for full public involvement in cleanup decisions.

Certainly, on the surface there appears to be a banquet of opportunities for public involvement. We have meetings, one right after the other on the Community Relations Plan, proposed cleanup plans, the Site-Specific Plan. We even hear there are some plans to start scoping for a site-wide environmental impact statement. There seems to be a whole lot of planning going on.

There are agencies and departments within agencies eager to tell us everything they think we need to know about every plan. Draft Records of Decisions, of course, remain secret. Without prodding, the agencies wouldn't even tell us the plan for monitoring groundwater at the Test Reactor Area 125 years from now, even though that's the proposed plan. #T1-1 P-13 P-25

But all these meetings are in reality, somewhat confusing, laborious and redundant. They will ultimately frustrate and exhaust the public. Whether intentional or not, this balkanized approach to public involvement serves mainly to dissipate public participation, consuming time and energy of public interest groups that might otherwise be spent on more productive pursuits.

Why don't we regard these meetings as productive?

Blurred in the seeming abundance

of opportunities is the fact that no process yet exists that allows citizens to participate or even be represented on the front end of the decision making process. Agency officials devise and present proposed solutions, the public comments on these proposals, and then the agencies decide what, if any, changes to proposed actions will be taken in quote, "response." While this process may occasionally -- somewhere on earth -- lead to significant alterations in a plan, it effectively precludes the public from challenging the basic planning premise.

One such premise set forth on page A-9 of the Perched Water Plan is the notion that the Department of Energy will retain control of the Idaho National Laboratory for the next 125 years, 23 years longer than Idaho has existed as a state. Who has decided the INEL will be there for 125 years? Can they guarantee it? Did they ask the people of Idaho? I doubt it. But the people of Idaho just might see a pattern. Does this projection mean that the Department of Energy will be maintaining control over high-level waste until the year 2117? Does that #T1-2 P-14 constitute interim storage? Would the DOE have taken such a long-range view when it put sodium contaminated waste into single walled tanks, or maybe it did.

What the people of Idaho need or deserve is substantial process reform. First, cleanup decisions cannot be left to the bureaucrats and the technocrats alone. These problems are social, not just technical.

Secondly, the people deserve an honest commitment of accountability to help restore citizen faith in the DOE. Citizen input should be welcomed and used, not tolerated and then ignored.

Third, full disclosure of the environmental and health concerns, risks and hazards at the INEL is needed immediately.

Beyond substantial process reform, cleanup needs to proceed along a rational policy. The current patchwork of INEL cleanup policies is woven by inter-agency politics and inevitably warped by the DOE efforts to retain functions related to nuclear weapons in Idaho. We believe an honest analysis of the environmental, health and economic issues

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involved in cleanup should include the following: First, no more waste should be allowed into Idaho. Secondly, on-site waste production should be reduced to the maximum extent possible. Third, on-site contamination should be handled rationally along these lines: First, imminent threats should be dealt with immediately, such as possible leaking high-level waste tanks. Secondly, mobile waste should be kept from spreading. Third, interim actions should only be used to reduce risk without significantly complicating future remediation. And finally, someone needs to ask the people of Idaho what the final cleanup standards should be and what they want the INEL to ultimately look like. Thanks.

MS. GREEN: Do we have anybody else who would like to made a verbal comment?

AUDIENCE MEMBER: John Tanner from Idaho Falls. I believe that DOE had made a sensible decision not to spend money attempting to clean up or somehow purify a body of water which is going to disappear within a few years after they cease adding to it. That would certainly waste -- spending money on that would

#T1-3
P-23

TI-00302 (2)
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TI-00304 (1)

certainly detract from any cleanup that we may find later really does need to be done. #T1-3 P-23

AUDIENCE MEMBER: Dennis Donnelly, Pocatello. I would like to ask you to please clean up the contaminants in the perched water. I think that strontium and americium and cesium are exactly what we do not want to see in the Snake River Plain Aquifer. Thank you. #T1-4 P-24

AUDIENCE MEMBER: My name is Bruce Schmalz. I was involved in the early work up until 1970, and I'm a retired citizen at this point. I am impressed with the logic that has gone into the recommendation, and I concur with it and I have expressed such in writing. #T1-5 P-23

However, something else has caught my attention tonight, which is this figure of $2 million. And in coming to that figure, I'm also impressed with the staff that's been presented here, many of which are managers, which I presume means other people besides those that are present. And in developing this recommendation, I find that in spite of all this staff, resident staff, State staff, EPA staff, we ultimately have to go down to Dames & Moore to get some developments of the recommendation, #T1-6 P-23 and that work I'm impressed with too. A fine report it seems to me.

But I guess after the past week and I see this matter of cost and change, government expenditure, deficit reduction, balanced budget, I guess my comment is in response to the previous speaker as an example, it seems to me that if spending money is the solution, we have an overkill. And in my estimation I don't expect an answer, I know what the answer is, and to repeat myself, I don't expect an answer or a response. Just a comment. #T1-6 P-23

MS. GREEN: Anybody else who has not provided an oral comment who would like to step up to the microphone and provide one?

AUDIENCE MEMBER: My name is Beatrice Brailsford, 310 East Drive, Pocatello. And I'm testifying this evening as an individual.

Earlier this week we had a briefing on this plan in Pocatello, which I did think was kind of a breakthrough. The community in Pocatello has not been sought out very much by the people who are doing cleanup at INEL.

The briefing was a little strange.

However, we had one person from the Community Relations portion, I guess, Reuel works for EG&G Idaho. We had an employee of EG&G giving a presentation and then on the phone we had a plethora of regulators who were unable to make the 48 mile drive to Pocatello. That made me very angry, because, of course, one of the reasons I was excited by the IAG was that there would be someone in the front of the room besides the DOE and its contractors. That evidently is only held for special events.

In the future, I would like to see the briefings continued, but I would like to see the regulators actually attend. One of the regulators assured me that he understood public involvement. I doubt deeply that he does.

I would like to talk about two things that occurred at the briefing. One, again, focuses on that fairly loaded statement on page A-9. First, it was assumed that a 125-year period elapses before individuals occupy the site. I asked a DOE person who, of course, I cannot recognize here tonight because it was on a speakerphone, if that statement meant that the Department of Energy was planning

#T1-7
P-14

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to maintain institutional control of INEL for 125 years, and the answer was, quote, "yes," end quote. I think you have to check around.

That was certainly a good deal of the discussion and the scoping meeting for the cleanup PEIS was how long would DOE maintain institutional control at the site? It seems to me to fly -- in the 125-year time period, it seems to me to fly in the face of common sense. I think we'll have contamination there in 125 years, but I don't think that we can absolutely assume for the purposes of planning that the DOE will be there 125 years from now to control that contamination. Again, I really do think that that is a decision that Idahoans must be involved with, not DOE. #T1-7 P-14

Now, I would like to focus again on the statement on page A-10. Monitoring of the Perched Water System and Snake River Plain Aquifer as well as periodic reviews will be conducted by EPA and the Idaho Department of Health and Welfare. Details for the development of the proposed monitoring plan and criteria for termination of the reviews will be outlined in the Record of Decision. #T1-8 P-25

I asked the representative of the State, Dean Nygard -- and again he was not present, he was on a speakerphone -- if he understood that we would like to see details of that monitoring plan before the Record of Decision. Dean said he understood that, and went further to say that perhaps details could be available for us here tonight where the regulators were as opposed to Pocatello where the regulators weren't.

Now, I find that no discussion, evidently, that occurred in that briefing between a citizen of Idaho and an employee of Idaho went beyond that speakerphone. So what good was the briefing to begin with? Why did they have to put themselves out to the extent of sitting in a room in Idaho Falls? And why did I have to put myself out to the extent of sitting in a room in Pocatello and talking over the airwaves evidently about nothing? #T1-8 P-25

So here tonight when I asked again about the monitoring plan and its availability, I was told it would be available -- where here it says, quote, "Will be outlined in the Record of Decision." Evidently maybe it will be

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floating there somewhere 21 days after the Record of Decision. You know and I know that there is no access for public involvement short of fairly elaborate administrative or legal steps which Howard Blood was not even willing to tell us about the last time we tried to bring up what happens if we're not happy with the Record of Decision. #T1-8 P-25

So we're left approving a plan that we don't even know about yet. You know, maybe we're going to use USGS status, maybe we are going to use ISU data, maybe in 125 years we'll all be so old that it won't matter anyway.

I understand that this is difficult for regulators. I understand that this is difficult for the agencies that cause the contamination in the first place, but that contamination was caused exactly by this sort of thing that, hey, we're in charge and we're going to be in charge for a century and more and don't bother us, we'll put it in a file somewhere and you need not look it over, all you have to say is yes. #T1-9 P-14

I encourage you to continue to have briefings in Idaho towns. I encourage you to continue to do meaningful efforts of public involvement, but if you're going to have meetings that are nothing more than late night bullshit sessions, then it's not worth it.

Thank you.

MS. GREEN: Would anyone else care to make a verbal comment?

AUDIENCE MEMBER: John Horan. I'm a retired site worker, and I continue to be an environmentalist. You've heard tonight quite a broad spectrum of comments. If you would like to categorize what my comments are going to be, they are going to be at an extreme. You might even use the "L" word; I'm a liberal.

I endorse the TRA Perched Water System Proposal as well as the other two proposals to be discussed tonight. The No Action recommendations represent a realistic, logical and common sense approach to the management of very low levels of chemical and radioactive contaminants 50 feet or more below the surface in an environment of the basalt and sagebrush desert. #T1-10 P-23

I trust, though, as Mr. Schmalz mentioned earlier that a baseline risk assessment of this magnitude will not be necessary for similar levels of low level contamination now that we know that this type of extensive evaluation indicates that you are at least three orders of magnitude below an area of concern for human health. #T1-10 P-23

In light of what has just been said, I wonder if I could ask a question of the group, and that is: Does anyone know what the initials NERP represents? Could I have a show of hands? Good, three people.

In the mid-1970's Congress declared the INEL to be the nation's second National Environmental Research Park. To me this goes beyond DOE's ownership of the land. There are very few areas in this country that have been so designated. All lands within the boundaries are a protected outdoor laboratory where scientists from throughout the country can conduct ecological studies. #T1-11 P-14

This part of Idaho is the largest undisturbed area of sagebrush vegetation with over 400 species of native plants. I would expect that most environmentalists would like to see this area preserved as a National

Environmental Research Park, well beyond the 125 years that has been identified as part of the paper study that has been made. #T1-11 P-14

I'm going to touch upon a few other items. While I'm endorsing the No Action proposal, I really support perhaps 95 percent of what is contained in the documentation, and perhaps for somebody who asks as many technical questions as I do, this is a very high percentage. #T1-12 P-23

Let me mention a couple things that are not mentioned, which I believe should be there. No mention of the tritium or chromate levels in the drinking water at the TRA. Three wells were mentioned and identified, and I believe these are the production wells. There is data on this which should support this study. In fact, the use of these wells should provide drawdown information, which may impact some of the movement of the water from the lower perched zone. #T1-13 P-07

Now, the report also mentions on page A-10 the tritium concentrations will decrease due to natural radioactive decay. It does not mention that dilution is also a factor #T1-14 P-11

#T1-14
P-11

which is taking place.

Now I would like to talk about drinking water standards, if I may. And I look upon this as a question of honesty more than anything else, and particularly, young lady, if you don't mind, I'll address this to EPA. And EPA has over the past seven years been preparing -- they have known that the current values used for tritium in drinking water are ultrasafe. And by at least a factor -- and to make it a big number, I'll say 300 percent. This has been known. EPA has had a draft out -- in fact, they started revising the drinking levels seven years ago. They were supposed to have been published in June of '91, then it was postponed to June of '92. This is in 40 CFR, part 141. Last month I contacted EPA in Washington and the latest date is now April of '93.

This fact that these numbers are going to be changed significantly should be part of this report, part of your openness. Tritium will go from 20,000 picocuries per liter -- this is a god-awful number -- to 60,900 picocuries per liter. Strontium-90 will be increased by a factor of 5, or 500 percent, if you like, from 8 to 42.

The other thing that I will be critical of your report is you have a footnote, I think it's footnote B, which says that you will not identify the drinking water level for cobalt or cesium-137. I really believe, to be more open, you should include these numbers cobalt-60, 218 picocuries per liter, cesium-137, 119. Then use your footnote to identify that this is for isotopes alone and that when you take into account a multiplicity of isotopes, you're in a different ball game.

#T1-15
P-05

By the way, these latest figures for EPA that gave you the change in 40 CFR, part 141, these are in the Federal Register of July 18th, 1991, and my information now is as of June of '92, last month, that these are the final figures.

The other thing I find very interesting, and again, I'm critical of EPA, I'm astonished under the chemical drinking water standards have not been established for cobalt, manganese, fluoride. I can't believe that in today's world that we have not established levels that can be used to protect the public, particularly when you consider how long many of us have been using fluoride artificially injected in our drinking water for health purposes.

One final comment, if I may, and it's basically a request, and I would hope that you would publish the public comments that were made at the original meeting several months ago when the general scoping was being made on this particular project, because the general conclusion that was made by the people and the general theme of the comments that were made was that there was no need to take protective action. Thank you. #T1-16 P-26

MS. GREEN: Is there anyone else who would like to take this opportunity to make verbal comments on the perched water study?

Okay, if there are no other comments to be made at this time, why don't we take a 15 minute break before the second part of the meeting where we will discuss the CFA area projects.

(A recess was taken.)

MS. GREEN: Before we begin the

second half of the meeting, I would just like to respond to a comment that was referring to a nameless voice on the telephone in response to the question of: Is DOE going to be around in 125 years, said, "yes," end quote. The name of the voice on the phone was myself, and to the best of my recollection I recall my answer being that 125 years was based on 25 years of operation and 100 years of institutional control as recorded under DOE order, end quote there. The 100 years of institutional control is also required in the Code of Federal Regulations.

Let's move on to the second half of tonight's meeting. From here on we'll be talking about the Motor Pool Pond at and the Central Facilities Area and the Chemical Evaporation Pond at the Auxiliary Reactor Area proposed plans. We combined these because they are very similar in many respects, they are both relatively small units, they both concern pond sediments of ponds that are no longer in use. A similar approach was used in investigating and assessing these sites, and we've come to the same recommendation of No Action for both of these units.

I would also like to introduce the respective project managers on these sites for EPA and Department of Environmental Quality. Dave Frederick to my immediate right is the WAG manager for WAG 4, Central Facilities Area. Tom Stoops is the WAG 5 manager for the State, the Department of Environmental Quality. Howard Blood on the far left over there is the WAG manager for both WAG 4 and 5 for the Environmental Protection Agency.

With that, Nolan, I'll give things back to you then to provide the information on the CFA Motor Pool Pond Proposed Plan.

MR. JENSEN: I get to be lucky enough to have worked on both of these projects. And again, I will present the introductory information and then if there are any hard questions I will quickly refer you to my subcontractor.

I'll just be presenting the Motor Pool Pond. This is 4-11, Operable Unit 4-11, and both of these projects are quite similar. This one in particular is the thing that we have looked at with the Motor Pool Pond and the risk that the sediments in the pond pose. So it just looks at those sediments.

This is a photograph of the Motor Pool Pond. This greenish area right here is what we're considering. The Motor Pool Pond is no longer in use. They stopped using it in about 1985. This sign right here -- just in case you're curious about what that is, all of the sites that are to be investigated under the agreement have a sign similar to that one to mark them so that everyone knows that the site is there.

As you can see, this photograph was taken just a couple of weeks ago. So the green in there is a result of this rain. Earlier this spring it was completely dry.

Just to give you a little bit of history of what this pond is all about, out at the Central Facilities Area, which is the administrative area for INEL, a lot of activities like central warehousing and support activities go on at the Central Facilities Area.

This building in particular is the service station. And though it's a little bigger than your typical in-town service station, it does a lot of the same kind of things. Maintenance, oil changes, washing, that kind of thing is done on fleet vehicles and equipment out at the site. So that's the building that we're talking about. This is a photograph inside of the building. This floor drain right here, as things are washed off of the vehicles, they go down into the floor drain. That's from inside of the building.

Just on the outside of the building there is another drain and grate for vehicle washing. So the wash water went into this grate, both of them went into a sump, into a pipeline, the pipeline went out to the east of the Central Facilities Area. The building that we were just looking at back in here, the pipeline comes out towards us to the east here, and the pipe has an outlet at the back of this ditch. The water then ran through, again, like I said, it hadn't been used since 1985, but the water then ran through this ditch to the east, then into the Motor Pool Pond again over to the right side of the picture. So that's the situation at the CFA Motor Pool Pond.

What was done as far as the Remedial Investigation, there were several samples collected, 51 to be exact, of the sediments in the pond in 1989. These samples were collected between 0 and 15 feet, and they were collected both from the pond and from the ditch leading to the pond.

So that is how the question again was answered: What is out there? And this is a list of the contaminants that were detected, and again highlighted are the contaminants that were of greatest concern in the risk assessment and found to cause the greatest risk.

Now, as far as how those contaminants can reach an individual, a person, there are a couple of things evaluated. First, we looked at exposure to on-site workers. The Central Facilities Area has about 1,200 employees working there. The other thing was looked at, again, a future resident. In both cases what was considered is: Could a sediment be blown up and inhaled? What would the risk be by exposure to skin, to ingestion of soil, to exposure to radiation at that site? That was looked at for both the occupational scenario and the residential scenario.

Also, as I mentioned that in this

case two scenarios were looked at for the future resident, and that was at 30 years and at 100 years. The occupational scenario was looked at in the present. Again, because the site has restricted access, no one is allowed to go in there unless on official business. For the current scenario, we did look at the occupational. This little diagram is supposed to represent the pond, and the risk calculations showed that risk is about one in a million.

For future residents, again, the same scenario and the risk was shown to be about two in 100,000. Both of those numbers are for the non-carcinogenic risk.

MR. FREDERICK: Excuse me, Nolan, that would be carcinogenic risk.

MR. JENSEN: Excuse me, sorry, right; carcinogenic risk.

AUDIENCE MEMBER: Is that risk, one in a million and two in 100,000, a risk per year, or assuming a 30-year residency at that point?

MR. JENSEN: For the future on-site resident, it's a 30-year exposure. Is that correct?

MR. STANISICH: Yes.

AUDIENCE MEMBER: For the occupational that's a per year?

MR. BLOOD: No, 25 years.

MR. JENSEN: So this is a summary of the carcinogenic risk for a future on-site resident. Again, in comparison to the risk range established by the regulations for 100 years and for 30 years, as you can see, they are not that much different.

Now, looking at non-carcinogenic effects or toxic effects, as you can see, it's below the hazard index of one.

That was a real quick overview, but again, based on that assessment, we're recommending that No Action be taken. So any questions on this one?

MS. GREEN: Do we have any specific questions about the presentation on this? I think we're going to try and lump the more general Q and A session after we do the Chemical Evaporation Pond.

AUDIENCE MEMBER: Can we see the summary slide on the carcinogenic risk again? Is that a correct representation of the 30-year exposure?

MR. JENSEN: Yes. For a resident living there, starting 30 years from now.

AUDIENCE MEMBER: Thank you.

AUDIENCE MEMBER: May we see the contaminants slide, please.

Do you have estimates of the concentrations or the total value contained for lead or plutonium?

MR. STANISICH: Well, from the sampling data, we have the 51 samples we have the levels that were detected in those samples. I can't give them off the top of my head.

AUDIENCE MEMBER: I think there would be a summation of how much of this stuff is out there.

MR. JENSEN: Nick is looking through that quickly now. This is Nick Stanisich from MSE. He was one of the people that worked on this project for us.

MR. FREDERICK: I can give you a quick summation. For cadmium the maximum concentration was 38.8 milligrams per kilogram. The mean was 7.1 milligrams per kilogram. And I calculated that mean value based only on the concentrations that were above the background level. The background level for cadmium was 1.6 milligrams. Moving down the non-carcinogenic list, the maximum level of lead detected -- for the sake of being brief, all these concentrations will be in milligrams. Lead maximum was 631, the mean, once again, of the value of above background was 121, the background value for that area was measured at 50.2. Chromium, the maximum value was 91, the mean was 32, the background value was 30.7. Barium, the maximum value was 434, the mean value of 189, background of 434. Would you like the information on carcinogenics?

AUDIENCE MEMBER: Yes, please.

MR. FREDERICK: For cadmium, again, that would be the same as the other ones, maximum 38.8, mean 7.1, background 1.6. In the risk assessment we use the maximum value of PCB detected that was 1.47. Chromium, again, 91.3, 32.4, 30.7. Beryllium, the maximum that I detected was 1 milligram per kilogram, the mean was .89, the background values are not detected, and the detection was .23 milligrams per kilogram. For the radionuclides, maximum value for cesium-137 was 8.41 picocuries per gram with a mean of 1.6. And for plutonium-239, the maximum value was 4.29 picocuries per gram with a mean of 2.2 picocuries per gram. Americium-241, maximum of 9.46 picocuries per gram, a mean of 1 picocurie per gram.

The reason I did not give you measured values for stronium-90 and barium-137m or metastable is because they are assumed to be present due to the presence of cesium-137.

MS. GREEN: Do we have any other specific questions on the presentation before we move on to the Chemical Evaporation Pond presentation? Then we'll open it up for more general Q and A on both of the projects.

AUDIENCE MEMBER: I'm wondering, a lot of these contaminants you wouldn't expect from a vehicle servicing facility. Did you ever figure out where the source was for some of those chemicals?

MR. JENSEN: The best guess is that during the washing, I think the proposed plan alludes to the fact that some of the vehicles had low levels of contaminants that were washed, so that's probably where it came from.

AUDIENCE MEMBER: (Inaudible.)

MR. JENSEN: I can't hear that one.

AUDIENCE MEMBER: Do they deliberately wash their property; is that the question?

AUDIENCE MEMBER: No, the question was: Was it by intent to wash a vehicle at that low level of contamination in that area or was it not?

MR. JENSEN: This is Bill Pigott, he's from EG&G and has worked out there.

MR. PIGOTT: What they do is bring the equipment in to service, it's part of that construction equipment. Now, if it's very highly contaminated, they decontaminate that unit out in the field and try to get it all down as low as they possibly can, but there are probably some in crevices and fractures. That's our best guess to where that came from.

MS. GREEN: Thank you, Bill.

Any other specific questions on the presentation?

I would like to now introduce to you Randy Bargelt. Randy is the WAG 5 manager for EG&G Idaho, who will present information on the proposal for the Chemical Evaporation Pond. After Randy has completed his presentation, we can respond to specific questions on that presentation and then open it up to general Q and A on both the CFA and ARA plans. Then following that we'll receive formal verbal comments.

MR. BARGELT: Thank you, Lisa. I'm here to talk about Operable Unit 5-11 for the Chemical Evaporation Pond at the Auxiliary Reactor Area. This investigation is to evaluate, again, very similar to the Motor Pool Pond, the risk associated with sediments that are left within that pond.

This is a photograph of the Auxiliary Reactor Area 1, which encompasses this area right here, and the Evaporation Pond here. You can see, this picture was taken when the pond was in operation. And the pond was in operation from 1971 to 1988, so this is a pre-1988 photograph.

You can see here the area that is moist, that this pond is being used at that time. This is a schematic diagram of that area, and the pond was filled, was drained, Building

627, about 300 feet of pipe out to the Chemical Evaporation Pond here.

It did not drain any of the waste from the facility here at 626. During our investigation or our sampling, we noticed that an area right adjacent to the end of the discharge pipe, which is about 100 square feet, was the area of highest contamination.

This is another photo of the area that was green in the previous photograph, and you'll notice this was taken at a much later date, which was a couple weeks ago, and the green vegetation has since died. And the area that I pointed out where the star was in the previous slide was right here, and that's the area of highest concentration. And the 100 square feet I spoke of earlier was this area right here with the high vegetation there.

This is another photograph looking back towards RA I from the pond itself and just looking to the north. The area of highest concentration, again, would be right in here.

During our characterization activities we sampled in 1990 approximately 160 samples in 40 locations, and sampled from the surface to approximately four feet in depth to the top of the basalts. The soils out there are very thin, the average soil thickness at the ARA is about two feet. From that sampling, we determined the nature and extent of contamination that was in the pond area.

Again, this will be a familiar looking slide, and the contaminants of concern were screened very similarly to the other two risk assessments that were presented previously. These are the contaminants of concern, and our risk assessment is being given by barium, plutonium-239 and cobalt-60. The same type of risk assessment for the scenarios that Nolan presented earlier were done here.

The same slide. Again, the exposure pathways that were evaluated were inhalation, direct exposure, direct ionizing radiation and soil ingestion and skin contact. These are the main pathways that we were concerned with because of the radiation -- the contaminants of concern were the rad samples and direct ionizing radiation was the major pathway that we were concerned with.

Again, similar to the other two

risk assessments, the current occupational scenario at the ARA facility, which is a surplus facility, the workers are only out there on decommissioning and decontamination projects and environmental restoration projects. So on a daily basis there are not a lot of workers on the site. It's also a restricted access, but the risk turned out to be two excess cancer cases in ten million.

The future residential scenario at 100 years, you notice the facility has been removed, which is in the plan to do at this time, and a residence was located next to the evaporation pond, and the risk would be one excess cancer risk in one million at 100 years.

The carcinogenic risks for the residential scenario both are within the acceptable risk range. At 30 years it was two in one million and at 100 years it was one in one million excess cancers.

Also for the pond for the hazard index we see no adverse effects for the non-carcinogenic contaminants and we see it at .09, which is well below the hazard index of one.

The agencies' recommendations are that we take no further action on this site because it poses very little threat to the environment or human health.

MS. GREEN: Do we have any specific questions of clarification on Randy's presentation before we enter into the general Q and A session on both plans?

Thank you, Randy.

Let's get started with the question and answer session on both the Motor Pool Pond and the Chemical Evaporation Pond, and if you will please help us out and tell us whether your question is directed towards one specific plan or both of them in general so we can then indicate what the response is.

And again, please pass your note cards to the end of the aisle or wave them, whatever it takes to get Reuel's attention. If you have additional note cards that you want collected during the session, raise your hand. We'll begin with the note cards as before. If after reading the card any of the responders are unclear about what the question is, we'll be asking the questioner a little more about the question in order to provide the proper response.

For those of you who want to come to the microphone and not use note cards, please do so. If you could please ask one question at a time so that your questions can be answered clearly. Any questions on either plan?

AUDIENCE MEMBER: I'm Dennis Donnelly. It's a question on both plans, or an observation, perhaps, that it would appear that your methodology again includes risks due to direct ingestion or inhalation of materials at the sites and does not include pathways due to future biological concentrations or biological dispersal. I would presume that in the springtime there is a steady stream of water at the little depressed areas on the site. Anyway, is that also true for these assessment, the risk assessment does not include biological concentration or dispersion?

MS. GREEN: Nolan, do you want Nick to answer that question on the risk assessment? Did we include the ecological risk evaluation that is addressed?

MR. STANISICH: I'm Nick Stanisich.

I have worked on risk assessment. Yes, we do include an ecological risk assessment to look at pathways, both vegetation pathways and animal pathways to humans. We didn't look specifically at agricultural scenarios because the soils in that area are so shallow and basalt out crops occur numerously in the areas, as you can see by the photos. So that pathway of raising a garden or sustained agriculture in that area turns out not to be a viable scenario.

MS. GREEN: Any others before we begin the oral comment, receive oral comments on both of these projects?

AUDIENCE MEMBER: This is not so much a question, but it's an observation. The half-life for plutonium, for example, is thousands of years and these bottoms dry up, the wind blows, they get wet, the animals come through. If the stuff makes it to the aquifer, of course, it doesn't stay put.

MS. GREEN: Was that a question or a statement?

AUDIENCE MEMBER: Just a statement.

AUDIENCE MEMBER: I have a question following up the question that was asked on the

Motor Pool Pond. Do you have the concentrations of radionuclides of interest, the plutonium, barium or the cesium-137 that were found in those samples?

MS. GREEN: There was an onset to Mr. Donnelly's question taking into consideration airborne distribution of plutonium, and I believe --

MR. STANISICH: That was taken into consideration in both the occupational and residential scenarios, inhalation of plutonium.

As you can see, here are the concentrations, the chemicals that were detected and radionuclides, the upper range of background as compared to the range of detection --

MS. GREEN: Is this related to ARA?

MR. STANISICH: This is ARA.

AUDIENCE MEMBER: So only one sample of plutonium was selected?

MR. STANISICH: That's true. That was collected at an area of the highest concentrations of other radionuclides as surveyed by using field screen instruments that detect ionizing radiation.

Another method that we use in the

site investigation was -- although only one sample was collected and specifically analyzed for plutonium-239, we used a relationship between the detection of americium-241 and the presence of plutonium. Americium-241, which is also a transuranic, is detected in the soil through gamma spectroscopy, then it's probable that plutonium-239 would also be detected, and since the detection of americium was non-existent through the gamma spectroscopy, therefore, it was concluded that there was not significant plutonium concentrations in the pond sediments.

MS. GREEN: Thank you, Nick. Are there any other risk assessment-type questions? Do we have any other questions about data or risk assessment or any questions on the CFA and ARA plans?

AUDIENCE MEMBER: Do you have any specific --

AUDIENCE MEMBER: Could you move it a little bit so we can see the units?

Also the headings of those columns, it's hard -- that's enough.

MR. STANISICH: You're telling me I

have to make this slide smaller or two slides.

AUDIENCE MEMBER: Isn't there a copy of this table in the RI?

MR. STANISICH: It is, it's in the report. It's not in the proposed plan, it's in the RI Report, the big report, but there is a summary of the metals detected in the proposed plan. There is a table and index where the concentrations of radionuclides are also listed, I believe -- no -- metals, yes, but radionuclides no.

AUDIENCE MEMBER: That's correct.

MR. STANISICH: But it is in the RI Report.

MS. GREEN: Any other questions on either the ARA or CFA Proposed Plans?

If that is the case, we'll go on to the portion of the meeting that is designed for you to provide oral testimony regarding the Motor Pool Pond and the Chemical Evaporation Pond Proposed Plans.

Again, the agencies will listen to your comments, but will not respond to them tonight. They will be evaluated and considered for the Record of Decision and responded to in a separate Responsiveness Summary for each topic.

If someone makes a statement for which either EPA, DOE or the State personnel would like additional information for clarification, please be sure to ask the speaker for that clarification so that we can understand the comments.

For clarity, would you please state, again, not only your name at the beginning of your comment but also which plan you're commenting on at the beginning of your comment.

Reuel, how many people have signed up at this point to make verbal comment?

MR. SMITH: We don't have any signed up.

MS. GREEN: Do we have anybody who would like to make oral comments on either CFA or ARA Proposed Plans at this time?

When you make your statement you're welcome to take a single turn up to five minutes as we described before. If you're not able to put all your thoughts into a five minute period, remember that the comment period is open until August 5th, and written comments are considered

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with equal weight.

I guess we can begin.

AUDIENCE MEMBER: I'm Dennis Donnelly. I would like to ask you to clean both places. I feel it would be extremely easy to do, a few thousand square feet. It's a very simple cleanup, none easier. I would like you to be able to say that you've cleaned up your mess. Thank you.

AUDIENCE MEMBER: John Tanner from Idaho Falls. Once again, I think DOE, EPA and State of Idaho have made the right decision. I just don't believe there is enough of a mess to be worth the attempt to so-call clean it up. The money can better be spent elsewhere.

MS. GREEN: Is there anybody else who would like to make oral comments for the record on these two proposed plans?

With that, I'll again remind you that if you change your mind between now and August 5th, that written comments receive equal weight as oral comments and there are forms at the back of the room. If you would like to pick one up and take it with you just in that eventuality, please feel free to do that.

With that, I would like to thank you all for coming out tonight and for all your efforts. We hope we helped explain some of the details connected to this topic. And I want to thank you for making comments on this plan.

Thank you and good night.

(The hearing concluded at 9:30 p.m.)

PERCHED WATER, MOTOR POOL POND AND
CHEMICAL EVAPORATION POND PROPOSED PLANS

BURLEY, IDAHO
July 21, 1992
6:30 p.m.

SPEAKERS

Lisa Green, DOE-IDAHO
Nolan Jensen, DOE-IDAHO
Joe Gordon, DAMES & MOORE
Randy Bargelt, EG&G IDAHO
Dave Hovland, DEQ
Dave Frederick, STATE OF IDAHO
Linda Meyer, EPA
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BURLEY, IDAHO, TUESDAY, JULY 21, 1992, 6:30 P.M.

MS. GREEN: I would like to welcome everyone to tonight's meeting. We're glad you were able to attend, and we certainly look forward to a very productive meeting.

My name is Lisa Green. Tonight I will be serving a dual role. First, I'll be acting as moderator for the meeting. As moderator my job is to move through the agenda in a timely manner and ensure that everybody who wishes to participate is provided an opportunity.

The other role I'll be playing tonight is that of the remedial project manager for DOE-Idaho. In that role I'll be helping to answer some of your questions on the project.

I'll try to indicate specifically when I'm putting that hat on so that you know that I've slipped out of the moderator role and into a representative of DOE.

We have several goals for tonight's meeting. The first goal is to gather public comment on the three proposed plans. They are plans for No Remedial Action at three sites at the INEL. They are at the stage where DOE, EPA and the State have developed a technical recommendation and are taking public comments before a final decision can be made on each of those three projects.

Input received during this public comment period, including formal comments made at this meeting and written comments received during the comment period, will be used to evaluate the recommendation that's been put forth, and then to formulate the final decision for these three sites.

The second major goal is to give you an opportunity to ask questions and inform you about the details of the three proposed plans that are before the public at this time, and also to explain how they are put into a broader scope of DOE's cleanup activities at the INEL. So basically we're here to listen to each other tonight.

Let's take a moment to look at the agenda that you received when you entered the room. If any of you did not pick up one, we'll be happy to provide you with one. As you can see, we have three topics on tonight's agenda.

The first topic is a proposed plan for the Perched Water System at the Test Reactor Area.

Following a brief presentation on that topic, we'll have a question and answer session to clarify any information that you would like to have explained in greater detail than what was provided in the presentation.

After we've answered all your questions, we'll then take time to receive your formal verbal comments on the Perched Water Proposed Plan.

After a short break, we'll move on to the second part of tonight's meeting, and that is to discuss the proposed plans for the Motor Pool Pond at the Central Facilities Area and the Chemical Evaporation Pond at the Auxiliary Reactor Area.

These projects are very similar in nature. We combined them in response to a number of public comments that we received in the past requesting that we try to combine similar topics whenever that's possible. So that's what we've done here tonight with the Motor Pool Pond and the Chemical Evaporation Pond.

At this time, I would like to introduce several individuals in the audience. The first one is Reuel Smith; if you would like to stand, Reuel. Reuel is the community relations plan coordinator for the INEL. This is also probably a good time to mention that the public comment period on DOE's Community Relations Plan has been extended to September 1, 1992. This plan establishes the process by which DOE communicates environmental restoration information to the public and helps communicate concerns back to DOE. So if you have any issues related to the Community Relations Plan, then you might want to talk to Reuel tonight.

The second person is Mike Coe. Mike, would you please stand. Mike is with the INEL public affairs office. So if you have any questions or comments outside the scope of tonight's meeting, Mike will be happy to speak with you either at the break or following the meeting. And I think Mike had some information he wanted to provide here tonight?

MR. COE: Yes, I just wanted to announce that the draft INEL Site Specific Plan is now available. The Site-Specific Plan basically outlines the INEL's environmental restoration waste management activities, plans and opportunities for public participation for the fiscal year. This year we did things a little different with the Site-Specific Plan. We're making draft plans available for public review so you can now comment on the draft Site-Specific Plan, and your comments will be addressed and incorporated into the final Site Specific Plan. The comment period on that starts on August 7th, and we'll have a meeting in Twin Falls on August 24th to accept public comments. If you want a copy of that, please just see me at the break or after the meeting, and I'll make sure you get a copy of it.

MS. GREEN: Thank you, Mike. Linda Baird is also here tonight. Linda is the Twin Falls Outreach office manager. And Linda, would you like to say a few words also?

MS. BAIRD: I would just like to remind all of you that we do have an Outreach office for the Magic Valley. We're located in Twin Falls. We would welcome any of you to utilize the office. We have a public reading room that has the administrative records. We're also available to help you in acquiring any documents that you're looking for. So please feel free to utilize our office for any information that you're seeking.

MS. GREEN: Thank you, Linda.

Finally, based on some concerns that were raised in a technical briefing in the Twin Falls area last week on these plans, we've asked Larry Mann, who is the program coordinator for the US Geological Survey, we've asked him to attend. Larry is here to answer any questions about the Snake River Plain Aquifer that may fall outside the scope of the three limited projects that we're discussing here tonight. So if you have questions about groundwater concerns related to the INEL that the experts on the three projects here cannot answer, we'll ask Larry to supply us with those answers.

After each of the two presentations, questions may either be submitted in writing using the note cards you found on your chairs or you're welcome to come up and use the microphone that Lane will bring forward here.

We use note cards for a couple reasons. One is they do allow people to clarify questions and the respondents get a second or two to prepare a good answer to those questions. Second of all, some members of the audience may not prefer to use the microphone. So that's why the note cards are there. If you don't wish to use them, please feel free to use the microphone.

We ask when you use the microphone, please state one question at a time before you go on to the next so we can provide a good answer to the first one before we start thinking about the second one.

Then after each question and answer period, there will be an opportunity for you to provide comments on the proposed plans for the agencies' consideration. This is the formal verbal comment period related to each of the plans.

How do you make comments? As I mentioned earlier, one of the purposes is to provide you an opportunity to make your concerns known to the agencies verbally. If you choose not to do so, you may wish to submit written comments or additional written comments in addition to your verbal testimony. The address of where to send the written comments is on the back side of the agenda. If any of you have brought prepared statements here tonight and you would like to have them included in the record, you can either read them during the oral comment period or you can provide them to Reuel Smith for inclusion in the record.

There is a tape recorder available at the back of the room if you would rather not provide your oral comments to the audience and would like to do it privately.

In addition, there are specific comment forms available at the back of the room, one for each of the three projects in different colors. You're welcome to fill out a form tonight and leave it with Reuel or send it to us in the mail. And I remind you that written comments and verbal comments receive the same weight.

Both written and verbal comments are evaluated and responded to in the Responsiveness Summary. You're welcome in making your verbal comments, you're welcome to take a single turn up to five minutes to make your statement to ensure that everybody gets a chance to participate.

The comment period for each of these projects runs through August 5, 1992. What happens to your comments after you have made them? After the comment period has ended, the Department of Energy will prepare a summarization of oral and written comments received during the comment period on each plan. The three agencies, DOE and EPA and the State, will then evaluate those comments and respond to the comments that are relevant to each topic in a document called a Responsiveness Summary, which is part of the actual Record of Decision for each project.

If anybody has signed the attendance register or given written comments and provided a return address, they will receive a copy of the Responsiveness Summary.

We have a court reporter here tonight to transcribe the meeting. To help the court reporter, please everyone take a few moments that it takes to come to the microphone if you're not using the note cards; otherwise, the court reporter may not capture what you're saying for the record, each time you come to the microphone with formal comments, not necessarily just questions and answers, but to make your formal comments, please be sure to state your name and the court reporter has asked that you please spell it for the record.

Now that I have given a lengthy introduction, I would like to introduce the agency representatives that are up here with me. To my immediate right is Dave Hovland with DEQ for the State of Idaho. To his right is Linda Meyer with the EPA, Region 10. I would like to give both of them a chance right now to make any brief remarks that they would like to make in opening this meeting.

MR. HOVLAND: Thank you, Lisa. I'm the State's INEL technical manager in Boise. I'm also wearing another hat tonight. I'm the technical lead for the TRA. I have a counterpart in the Idaho Falls office, and that's Shawn Rosenberger, who couldn't be here tonight, but two of his staff members are and they are going to be involved in the other two proposed plans.

I would like to introduce them. The first one is David Frederick. And Dave is the lead for the CFA, and he's an environmental scientist. The other person is Tom Stoops. Tom is an environmental scientist, and he's also the lead for the ARA. I would like to mention that the State supports all three of these proposed plans, and we have been actively involved in the entire process that went into the remedial investigation reports that were fed into this proposed plan, and therefore the recommendations that are made tonight.

The other thing I would like to mention, as Lisa mentioned, we're very, very supportive of a lot of public comment, basically to feed into this Record of Decision and the Responsiveness Summary that will come out of these public comment periods.

I'm also really pleased tonight to be able to introduce Dave Humphrey, who is out in the audience over there. Dave is the State's deputy director and the Governor's coordinator for the INEL Oversight Program.

MS. MEYER: My name is Linda Meyer. I'm with the Environmental Protection Agency. I'm the project manager for the Test Reactor Area, and have been working on that site since October or so. I work more closely with Nolan, on the other side of the table there.

We are also going to do a presentation for the Test Reactor Area, which is my Waste Area Group. And Howard Blood is the Environmental Protection Agency representative for the other two proposals that are presented this evening.

I would just like to emphasize that we are involved in these projects from the scoping phase and through the final end point, and at this stage in the process, we haven't reached a decision, but we have agreed on a recommendation, and your input at this point is important to us. So we encourage your participation in the process.

MS. GREEN: Thank you, Linda.

With that introductory note, let's move right into the presentation of the Perched Water System at the Test Reactor Area.

First, I would like to introduce Nolan Jensen, who is the DOE project manager for that project. Nolan.

MR. JENSEN: What I'm going to try to do tonight is not stand in front of my slides, so is this a good spot? Can you see past me?

AUDIENCE MEMBER: We can see through you.

MR. JENSEN: Again, the three projects we're going to talk about tonight are the Perched Water System at the Test Reactor Area, the Motor Pool Pond at the Central Facilities Area and the Chemical Evaporation Pond at the Auxiliary Reactor Area. So those are three different areas at INEL.

I guess before we start into this, the first thing I would like to do is talk to you for just a few minutes about the process that we do go through in coming to these recommendations.

It's kind of hard to take several months of work and reduce it down into a ten or fifteen minute presentation. It's kind of frustrating for us sometimes, and perhaps for you as well, but what I would like to do first is go through the process and explain how we come to these recommendations, then we'll go through each project so you can see how we step through the process for each one of those projects.

Again, these are the three sites. Just a quick photograph. This is the Test Reactor Area. Most of it anyway shows up on the slide. These are series of waste water ponds out by the Test Reactor Area, and I'll be talking about those a little bit more when I get to that project.

This is the Motor Pool Pond. I believe this is the Lost River range that you can see in the background. We're looking northwest in this direction. This area right here is the Motor Pool Pond -- or what used to be a pond, I guess I should say.

Then this is the Auxiliary Reactor and this is the Chemical Evaporation Pond right here. Again, it's what used to be a pond.

Okay. Let's talk about the overview of the process for just a minute. First of all, how did we become a Superfund site and get into this process to begin with? Under the federal law, it's referred to as Superfund, but it's really called the Comprehensive Environmental Response Compensation Liability Act, and now you know why they call it Superfund.

But it's set up to look at sites that are potentially contaminated and potentially pose a threat to human health and the environment. There is a scoring done by the Environmental Protection Agency, and the INEL went through that process and it was placed on the National Priorities List at the end of 1989, in December of 1989.

Now, once we are put on that list, what does that mean? That means that we need to go out to the site, to the INEL, and look at all the potential contamination sites out there and evaluate them and find out if they pose a significant threat and if that needs to be cleaned up.

That investigation process is called a remedial investigation. And tonight we're going to be talking about the three remedial investigations for three of the sites out there, and they are the ones that we've mentioned.

Once the remedial investigation is done, the three agencies come to a recommendation. Tonight we've mentioned on these three sites we've come to a recommendation that there is no problem, there is no cleanup needed. But once we get to that point, we come to the public to find out if you agree with our recommendations and help you understand how we came to that decision, and then based on your input we will make the decision, the final decision. As Lisa said, that is documented in what is called the Record of Decision. Once the decision is made, then the decision is implemented.

Let me talk in just a little more detail about the remedial investigation. The investigation really is -- even though there is a lot going on and a lot of things to consider, it's not really complicated, as far as what we're trying to accomplish. The investigation is just trying to answer a couple questions. Number one, what kind of contamination is out there? How much? How concentrated? And then given that concentration and the potential for that contamination to reach either humans, animals or whatever, what risk does that pose? Is it a problem? So that's what that investigation does. The first part, again, is characterization. The second part is the assessment of the risk.

Once the calculations have been done, there is a regulation known as the National Contingency Plan. It is in the Code of Federal Regulations. The National Contingency Plan establishes ranges for risk that we compare our calculations to to determine if there is a significant risk or unacceptable risk.

EPA has established for carcinogenic or cancer causing contaminants a range between one in 10,000 to one in one million possible incidents of cancer. So what we're saying is, we do a calculation and if we find out that the potential cancer causing contaminants at that site could cause a risk in this range or below, then it's not a problem. If it's above this range, then we need to consider cleanup.

AUDIENCE MEMBER: How much is this range?

MR. JENSEN: The National Contingency Plan was just updated in March of 1990; is that correct? I think that was the last update.

That's for carcinogenic risk.

AUDIENCE MEMBER: Nolen, that just talks about excess cancer, right?

MR. JENSEN: Right.

AUDIENCE MEMBER: It doesn't talk about other things?

MR. JENSEN: No, that's the next part, I'm getting to it. There is another part, and that is other types of health effects. For example, does this contaminant cause skin rashes, high blood pressure, kidney damage, liver damage, that kind of thing. So these are the non-carcinogenic or toxic effects. And it's looked at a little bit differently. What is done in this case is a hazard index, what is termed as a hazard index is established. What is done is there are studies on all these different contaminants to find out at what level or what is the highest level at which no adverse effect is shown.

So then we compare our level, the level of the contamination at the site, to that level and find out if they are above this number, this hazard index. I hope that was clear.

But anyway, if you're below that

number one, what that says is there is clearly no potential for any adverse health effects. That also takes into consideration sensitive people for populations like infants or sick people, that kind of thing. If we're above one, then we need to consider cleanup.

That's generally the process that's followed. Now, at INEL we put together an agreement, it's called the Federal Facility Agreement and Consent Order. That is an agreement between the three agencies, DOE, EPA and the State of Idaho, on how we'll implement the Superfund process at INEL. That agreement was signed on December 1991, so it was just a few months ago.

Because INEL is a big facility, it's pretty tough to go out and look at everything at once, so the National Contingency Plan suggests that complex sites be broken up in smaller pieces. So what we developed at the INEL was this concept of Waste Area Groups. And a Waste Area Group essentially corresponds to the different facilities at the INEL, with the exception of WAG 10, and WAG 10 is specifically looking at cumulative effects, pulling everything together and in particular looking at the Snake River Plain Aquifer. So the three sites that we're talking about tonight are at three of those Waste Area Groups.

Now, those Waste Area Groups are still not small pieces of work, so they are further divided into what is known as operable units. Basically, this is just a bite-size chunk of work, something we can focus on and determine if there is a problem.

Again, these are the three operable units that we're looking at tonight. Then what we will do for each of these Waste Area Groups is we will look at each of the operable units. In the case of the Test Reactor Area there are 13 different operable units. The last operable unit that we'll consider will be a comprehensive investigation for all the Test Reactor Area. Once all of those are done, then they will roll up into this Waste Area Group 10 comprehensive study.

We start with the small individual sources, small individual pieces, look at them cumulatively for each waste area group or each facility, and then we'll do one last evaluation for the INEL in its entirety and focus on the Snake River Plain Aquifer in that case.

So hopefully that will explain where we're going with these three projects and how they are divided.

Any questions just on that general process so far?

AUDIENCE MEMBER: I'm wondering about -- you talk about comprehensive investigation. You are talking about cumulative impact, right?

MR. JENSEN: Right.

AUDIENCE MEMBER: If you look at each individual site, look at the cumulative impact of each individual site when you're going through the process, but you're not going to look at the cumulative impact of all these sites until, what, 1999?

MR. JENSEN: It starts in 1998, that last one.

AUDIENCE MEMBER: Is there any mechanism for revisiting, say, the Perched Water System under the TRA when you get back to that?

MR. JENSEN: Yes. There is always potential. If you find out something that was unexpected, that Record of Decision needs to be revisited for sure.

AUDIENCE MEMBER: So you're not going to close the book until that's done?

MR. JENSEN: Well, we'll close the book as far as we come to a Record of Decision, but then if we come up with new information that sheds more light on the subject then we would reopen it, if that's found to be necessary. But not necessarily so, is what I'm trying to say.

Any other questions on the general process before we start talking about each project?

The first one that we're going to talk about is the Test Reactor Area, Perched Water System. Again, this is at Waste Area Group 2. Now, the focus of this study was to look at a body of water, which we call the Perched Water System. It's a body of groundwater beneath the Test Reactor Area. And the focus of the study was to look at that water, that perched water, and the effect that that perched water has on the Snake River Plain Aquifer and determine if that poses a risk.

So again, I showed you this

photograph before, this is the Test Reactor Area. What happens is during the operations of these industrial facilities at the Test Reactor Area, the wastewater from those operations is discharged through a series of ponds.

This one right here is called the Warm Waste Pond. We talked to you about that one about a year ago about the contaminants and the sediments. This is called Cold Waste Pond. These two are essentially the ones that have most of the water going into them and the Cold Waste Pond especially has the greater volume of water going into it right now even though it's essentially clean water that's most of the volume.

But anyway, as the wastewater goes into these ponds it percolates through the subsurface. As it percolates down through the sediments in the pond, it encounters layers of soil in the subsurface that aren't as permeable as others. In particular, there are two layers beneath the Test Reactor Area, two layers of soil that slows down the water as it percolates downward and it slows it down enough that the water mounds or perches, so that's where the term perched water comes from.

Directly beneath each of the ponds, if there is enough water going into them, as it encounters that first layer there is a small perching body of water. Then there is a larger perched water body at about 150 feet.

Again, here is the Snake River Plain Aquifer. I didn't bring it up here, but you might have noticed this is a drill core of the rock down there. Basically, the whole subsurface is layered lava rock, basalts, this is some basalt and sedimentary interbeds, just regular sediments. So that's kind of what the rock looks like down there.

MS. GREEN: Nolan, could you further explain that while that looks like a pool of water there, in fact it is within the open spaces in that rock. I don't know if we should pass that around to people to look at.

MR. JENSEN: Larry, tell us if there is anything to learn.

This is Larry Mann from the USGS. In the subsurface, I guess some people have the conception that there is a big body or a big ocean down there, but really it's just that the water fills in the void spaces in the rock. This basalt, this is a pretty solid piece of rock. If you looked at it on a bigger scale, you would see there is fractures and cracks in it.

What is really happening is the sedimentary layers of that might be sand or gravel. There is void spaces in that sand and gravel and that is where the groundwater is. In the basalts it's probably mostly in the fractures and the water is sitting in those, but it mounds up in those, so there is kind of a mounded -- saturated mound of water down there.

Does that make sense?

MR. HOVLAND: You might also mention the water is still going through the perching zone slowly.

MR. JENSEN: Right. It doesn't stop it dead, but it slows it down enough that it creates a mass, so it does continue to flow on down.

And what this is a picture of, again, is the boundary of the Test Reactor Area. This is the pond that I referred to earlier. This and the approximate outer extent of that larger deep perched body. It's about a little less than a mile long and about a half mile wide when this picture was done, or this thing was created.

Where do we get that information? Basically all of these little dots are monitoring wells. The wells are located at different levels, some of them in the aquifer, some of them up in the perched water itself. But that's where we get the information.

And what was done was not only look to the water levels in those wells, but samples were also collected from those wells and analyzed for different contaminants.

Now, basically that explains how we find out what is out there. Now, the next question is: Okay, we found out what's out there, how bad is it? That's what the risk assessment part does.

For that what I'm going to do is turn the time over to Joe Gordon. Joe Gordon from Dames & Moore out of Colorado did most of the work on this. Joe did the risk assessment calculations, and I'll let him talk about that.

MR. GORDON: Well, this is meant to

sort of give you a graphic idea about what the risk assessment process is. The first step is you go out and you evaluate all the data at the site, identify whether the contaminants are a concern at the site, then you use that data and follow essentially two parallel paths.

On the left there is the toxicity assessment where you evaluate those contaminants of concern from a toxicity standpoint for both carcinogenic and non-carcinogenic effects. Then in the exposure assessment you evaluate how the contaminants and water are flowing through the soils over time as well as calculating what the contaminant uptake would be to humans and ecological receptors. Then those two things are put back together in the risk characterization at the bottom here, where you combine the concentration and exposure to humans and ecological receptors with what the dose response is.

The data obtained during the site characterization is screened down to identify those contaminants, which are envisioned to contribute to at least one percent of the risk at the site. So that way we can focus the risk assessment on those things which are going to dominate the risk. The contaminants that are highlighted there are the ones that turned out to be the most important in terms of risk assessment.

Risks to humans were evaluated by looking at the hypothetical exposure scenario in which we envisioned that someone goes out and lives at the site right at the Test Reactor Area, installs a well directly below the Perched Water System into the Snake River Plain Aquifer, draws all of his water for domestic purposes from that well, irrigates his crops, feeds his livestock and he eats all of his vegetables and livestock from the site.

Then we also evaluated ecological receptors. We looked at vegetation in terms of uptake of groundwater by vegetation. We looked at herbivores, who eat that vegetation also consume groundwater that's pumped to the surface and, in the process of irrigation, that soil becomes contaminated and direct contact with the soil as well as carnivores, who are exposed to all these same pathways with the addition of consumption of animals at the site.

In order to evaluate the flow of contaminants and water at the site, we constructed a groundwater model, whose purpose was to predict concentrations of contaminants and water flow over time at the site.

One additional finding of note here is that the Perched Water System, Deep Perched Water System will disappear within seven years after we shut down the Cold Waste Pond. And the Cold Waste Pond was the one that Nolan mentioned as the one pond which contributes most of the water for the Perched Water System. I think about 90 percent of the Perched Water System comes from the Cold Waste Pond.

MS. GREEN: Joe, I think you need to say a little more about what that water is, if you would.

MR. GORDON: The Cold Waste Pond is essentially clean water. Cold means clean, that's what's cold means there, and warm means radioactive. That's what the nomenclature is there. The Warm Waste Pond, as you may or may not be aware, is being replaced with a lined pond now as we speak. It's being constructed. So I think -- correct me if I'm wrong, but by based on is the assumed reactor and TRA operations for 25 years plus the fact that regulations exist that would require institutional control for low level waste left in place for 100 years.

Now, those regulations would apply to whoever owned that land, be it DOE, be it another agency or be it a private person or industry. So that's what the 125 years is based on. And that was a point in time selected to make one calculation. As Joe pointed out, we make many other calculations for other points in time also, and the recommendation is based on all of those evaluations, not just the calculation for 125 years.

MR. GORDON: This kind of gives you the full spectrum there of over time what the risk would be to someone who was living out there. So what this is telling you that if someone lived out there in ten years the risk would be acceptable.

AUDIENCE MEMBER: Well, isn't it true that groundwater moves? So why would we even think that the same water would be there in 125 years?

MR. GORDON: Well; the Perched Water System, it's true, the Perched Water System will dissipate within seven years of the Cold Waste Pond shutdown, but there are still contaminants out at the site there, and the groundwater model that we constructed looked at natural rain, percolation through the Warm Waste Pond and through the sediments that are there right now. So this basically assumes that we do nothing else out at the site.

MS. GREEN: I'm not sure if we really answered the question.

AUDIENCE MEMBER: It wasn't really a question, it was an observation that this is meaningless because that perched water won't be there in 125 years, it will have dissipated away.

MS. GREEN: I think the risk assessment was based on water in the Perched Water System moving to the aquifer and a well being drilled in the aquifer right there.

AUDIENCE MEMBER: It wouldn't be there, it would have moved on. This is what water does.

MR. JENSEN: What it's saying is

that even though most of the perched water is gone in seven years through rain or whatever, those contaminants still could in small amounts go down to the aquifer.

Like Joe said, what was evaluated, what if someone put that well right beneath the Test Reactor Area, what kind of contaminants would they be expected to be drinking out of that water over the years. And that was evaluated through 125 years.

AUDIENCE MEMBER: I guess what I'm saying is we're not concerned what is going to be right there in 125 years, we're concerned with what has moved on down.

MS. GREEN: And I think that's why the ten-year, for example, the ten-year evaluation, was made to get a nearer term impact of what would move down from the perched water. Unless you're talking about -- again, I'm wearing my DOE hat -- if this -- you're talking about past releases to the aquifer before today; is that what you're talking about, is that what your concern is?

AUDIENCE MEMBER: I'm saying that the contamination that's there right here, right now wouldn't be there tomorrow, it moves, it moves some, maybe it's a little, maybe -- but to say that it --

MR. HOVLAND: I think it would help if you would, maybe, define what "operable unit" is here and the fact that there is another operable unit out there that basically takes care of what has gone off of TRA, and it's the WAG 10.

MR. GORDON: I think there is also another operable unit, which is what is up at the surface, what is in the Warm Waste Pond sediments.

MR. HOVLAND: I think the idea is that the computer model predicts the concentrations in the Snake River Plain in the top twelve and a half feet directly beneath the Perched Water System, and it's that contribution of the Perched Water System on the top of the aquifer, which is very conservative, because there is not a lot of mixing. You just look at the top of it, and that is what is predicted, that defines this operable unit, the one we're addressing. But this should really be pretty well defined before we move on. I think it's a critical issue.

AUDIENCE MEMBER: I think what the concern is it's not what is at the site, it's what moved off the site and on down the aquifer towards Magic Valley.

MR. GORDON: Let me address that, I thought that might be where you're getting. This risk assessment actually evaluates the maximum concentration and the maximum impact that you could possibly get because it calculates the risk to someone who installs a well directly below the Perched Water System without dilution through the Snake River Plain River Aquifer at some further downstream place.

MS. GREEN: So we basically evaluated a more conservative scenario than what you have raised as a concern and found that even in that more exposed situation that there is no unacceptable risk to that person. So it follows that if there is no unacceptable risk to people drinking the water right near there within ten years, that there would not be any greater risk to people further away.

Anything that's already in the aquifer, any contamination that's already in the aquifer today is going to be evaluated, as Joe said, under both the TRA Comprehensive Investigation and then a couple years after that the WAG 10 Investigation. I think at this time maybe, Larry, can you shed some light on the issue that's been raised here?

MR. MANN: Well, there is a history of 40 years of wastewater disposal, i.e. around 1952 when it all started. And we've -- we being the Geological Survey, have tracked many of those contaminants as far as eight or nine miles south of the point at which they were injected in the aquifer or exposed to a percolation pond.

In that eight-mile distance you can pick stuff up, there is no question about that. The question from a health and safety standpoint, which we have to look at too, is along the leading edge of that plume that is developed in the aquifer with specific contaminants in it, that's a method of detection limit, that's usually five percent or less of any maximum contaminant level set for drinking water by EPA.

So yeah, concentrations of

contaminants, I think there was a tritium driver there from -- well, in 125 years the tritium would be gone because of radioactive decay, that's in ten half-lives and ten half-lives it wouldn't be there. You wouldn't be able to distinguish it from background concentrations. And tritium does occur naturally in water as well as from the atmospheric testing program.

With the other, cobalt and chromium, cobalt has a five year half-life, it's going to be gone. The chromium, I guess, would probably be the real risk driver for anything after 125 years. It's reactive, so it's still going to be in the aquifer, but it will be, number one, diluted and number two, it will be absorbed out, it will be immobilized and attach itself to a rock rather than being in the water. And I think that's what the risk analysis shows.

MS. GREEN: But before 125 years.

AUDIENCE MEMBER: The thing that really bothers me about -- yeah, the dilution will be the solution for this, but we have all these many, many projects out there, many, many waste things that are going on and if dilution is the solution to all of those, then pretty soon, you know, 1998 or whatever it is rolls around and we do our comprehensive look at what all the different contaminants are doing to our aquifer and we go, oh, gee, we have a big problem. Well, we already know that now. Why are we letting dilution be the solution?

MS. GREEN: I think Nolan or someone on the project, I think we need to emphasize the basis for our recommendation is not relying on dilution. We need to emphasize that.

AUDIENCE MEMBER: Well, dilution in time. What else is it then?

MS. GREEN: I think the other factor that's being heavily relied on is the characteristics of absorption into soil and that type of thing, decay and absorption. And I'll turn it back over to the technical people.

MR. GORDON: What we did was we looked at the worst, really the worst place that we could possibly put a well, and it's only as a point of departure to look at other places where you could put wells where dilution becomes a factor. Okay, but we didn't look at dilution beyond the worst place you could put a well.

AUDIENCE MEMBER: To me it seems like if you're not going to clean it up, then you're letting dilution clean it up.

MR. JENSEN: What we're trying to say is we don't need to let dilution clean it up. It's clean without dilution. It's not posing a risk without dilution. So that was the whole point where dilution occurs. We're not saying it doesn't, but what we try to evaluate is what if someone put a well at a spot before dilution occurred? And what we're finding out is that even in that worst case, it's not a problem or in ten years it won't be a problem.

That's not to say that, you know, we like the fact that there is contamination down there or anything like that. In fact, the reason that we're doing this one so quickly and we started this investigation about almost a year before the IAG was even signed, this agreement was even signed, because we knew there was contamination down there and we knew it was a priority and we needed to find out if there was a problem. So we tried to look at the worst case we could to find out if that were a problem, and what we're saying is even in the worst possible case of someone putting a well right there, we think it's okay. In ten years it's not going to be a problem.

MR. HOVLAND: Larry, you have looked at quite a few wells out there. What is a typical well screen for a residential well? It's a lot more than 12 feet.

MR. MANN: You'd be looking at 50 to 100 feet in most of those areas.

MR. HOVLAND: The significance of that is with a larger screen there in a residential well you get a lot more mixing of aquifer. With a 12 foot screen at the top of the aquifer there is virtually no mixing, and it would be a very conservative highest concentration.

AUDIENCE MEMBER: Isn't that dilution. Isn't that what dilution is?

MS. GREEN: No, what we're saying is we didn't rely on it because we used a 12 foot screen rather than a 50 foot screen to evaluate it.

MR. HOVLAND: That was the point there, with a 12 foot screen you'd have virtually no dilution, thus giving you a very conservative approach to looking at the worst case scenarios with this well.

MS. MEYER: I think we should clarify too, it isn't exactly we're not doing anything. The Warm Waste Pond is going to be taken off line shortly here and that's the source of the contaminants.

AUDIENCE MEMBER: Why don't you close it down now? You've known about it since when?

MS. GREEN: It's in the process. When it was determined to be a problem, there was a request made for funding. The INEL made a request for funding to replace the pond. It's taken this long to do the planning and the permitting, and now construction is taking place this summer. And the construction of the liner, at least, will be completed during the summer. I can't tell you the exact time frame for actually using the lined pond instead of the unlined pond.

AUDIENCE MEMBER: So what is in the unlined pond would be moved over to the lined pond or is it going to evaporate?

MR. HOVLAND: Actually that's another operable unit. Last year we had some meetings on the proposed plan for the interim action for the Warm Waste Pond sediments. That's currently in the remedial -- part of that Record of Decision and treatability studies are going on right now to work out what is the most efficient way of removing the contaminants.

MS. GREEN: And the water that is presently going in the unlined ponds would be diverted to the lined pond.

MR. JENSEN: If you went out and looked at that pond right now, it's almost dry. So there's not much water in there.

MR. GORDON: I think another point to make here on the ten-year scenario is that the Test Reactor Area is still going to be operating in ten years. So no one is going to be living there and drinking that water even in ten years.

AUDIENCE MEMBER: What is in the cold pond?

MR. GORDON: The Cold Waste Pond?

AUDIENCE MEMBER: Yes.

MR. GORDON: It's uncontaminated

water. Maybe someone else --

MR. HOVLAND: It's basically just cooling water.

MR. GORDON: It's cooling water from the reactor.

AUDIENCE MEMBER: It must be wastewater otherwise you wouldn't be calling it waste.

AUDIENCE MEMBER: It's above groundwater that is used for cooling water.

MR. JENSEN: I think it is something like air conditioning units, they pump the water through those to cool down and the heat exchangers in that water is also going in there. But that also monitors that water continually to make sure that there aren't contaminants going in there.

AUDIENCE MEMBER: But it says in the little thing that if it carries 85 percent of the total volume of water even though that water is not contaminated, which would also contribute to driving down contaminants, that volume of water.

MR. GORDON: Well, it does contribute to the total volume of water, yes.

It does not significantly contribute to the driving of contaminants. If we stopped discharging, the contaminants are going to go down within seven years.

AUDIENCE MEMBER: If you have a large volume of water, it will be, or won't it?

MS. GREEN: Joe, wasn't a risk assessment done assuming that it remained in operation?

MR. GORDON: Right. It assumed that we continue operations of the Cold Waste Pond actually for 25 more years. And that's the end of operations and decommissioning of the Test Reactor Area, then the 100 year to control period. So actually assume the Cold Waste Pond operations continue for the next 25 years.

Well, similarly we calculated the potential adverse effects from non-carcinogenic contaminants and found those also to be acceptable for both 125 and 10-year scenarios.

So in summary, there are currently no unacceptable risks -- well, there are no risks to current residents, obviously, since the site is restricted. And the risk to a hypothetical resident living at the site would become acceptable within ten years.

I guess with that, I'll turn it back over to Nolan.

MS. GREEN: You'll have an opportunity for more questions and answers on this plan after Nolan does his presentation, he only has a couple more slides. So there is plenty more opportunity for questions and answers.

MR. JENSEN: Basically, I'm just going to go through the conclusions now. We already mentioned, based on a risk assessment we don't think we need to do anything to clean up the water; however, recognizing that this was based on a dynamic system and a groundwater model, a computer model that made these predictions, we still need to keep an eye on it. It doesn't mean we just walk away and forget about it.

So the recommendation is that we continue to monitor the situation. The regulations, National Contingency Plan, as I talked about earlier also talks about five-year reviews, or it talks about the agencies will need to go back and look at this decision at least every five years. It may happen more often than that.

So what we're saying is that even though we're recommending that we don't need to clean up the water, we still need to keep an eye on the situation and review it periodically to make sure that the assumptions that we based the decision on, or the recommendation on, are correct.

Maybe I'll give you a real quick idea of what we mean when we say monitoring. This was a question that came up at our meeting last night. Assuming that after public comment that we do go ahead and implement this decision, basically what we will do is develop a plan for monitoring this. What we'll have to do -- and we've talked about it some already, is we'll have to decide what contaminants we need to monitor.

Obviously, we already know which ones are of greatest concern. Tritium and chromium are two of those that we need to monitor. We also need to take out of that slide I showed you with all the wells on it, we would pick some of those wells, some key wells, some in the aquifer and some in the perched water in order to keep track of that situation to make sure that it behaves like we expect it will.

Also we need to look at the frequency, whether we take samples four times a year, once a year, that kind of thing. And then at what point or what information do we get that helps us decide that, yeah, things behaved as we thought they would, we can stop monitoring now, or on the other hand it didn't behave like we thought it would, we need to go back and look at it again.

So that's the idea when we say we're going to monitor, that's the idea that we're talking about.

Okay, that's it. Any other questions?

AUDIENCE MEMBER: Is it okay if I ask a question?

MS. GREEN: I was going to say for the general question and answer session, if you could use the microphone.

AUDIENCE MEMBER: On page A-5 it says the Warm Waste Pond is currently used only for disposal of reactor cooling water containing low level radioactivity. And I would like to know how low is low. There is not anything else that tells us what that means.

MS. GREEN: Nolan, do you have information on that current disposal?

MR. JENSEN: Well, the point that I was trying to make was in 1970, I believe it was, one of the other key contaminants, chromium, they stopped using that. What chromium was used for was it was a rust inhibitor in the cooling process. So that cooling water had chromium in it. They stopped using chromium in 1970, I think -- wasn't it? 1972 something like that. So there is no more chromium even going into the pond.

There used to be three reactors running, now there is only one, so just based on the fact that there are fewer operations going on, there are fewer contaminants going in. But I have also talked to people about is that the amount of contaminants, radioactive contaminants, in that water has even been reduced through a treatment process. But I don't know, off the top of my head, how much is treated. It used to not go through that treatment process.

MS. GREEN: Do we have that information in the RI?

MR. GORDON: It's in the RI Report. Like tritium information there is between 100 and 200 curies per year discharged to the Warm Waste Pond over the last few years.

MS. GREEN: Over how many gallons? Did you want the total amount or were you looking at concentrations?

AUDIENCE MEMBER: Well, I was looking at cesium.

MS. GREEN: Concentrations of cesium coming out of the water?

MR. SMITH: Lisa, while they are looking that up, can you explain what a RI Report is? I'm not sure everyone knows what that report is.

MS. GREEN: I'll put my DOE hat on again. An RI is a Remedial Investigation Report. We have copies on the back table that were developed for each of the three projects, and the RI report summarized all of the data that was used to make the recommendation to calculate the risk and it also explains how the risk was calculated and summarizes that.

MR. JENSEN: That's another good point. This proposed plan, the smaller document that you all received in the mail, if you're on the mailing list, that is just a condensed summary of the Remedial Investigation Report. The actual report is a lot bigger and has a lot more information in it. Where is the closest -- like Linda mentioned, those reports are located in Twin Falls.

MS. BAIRD: The official repository is in the Twin Falls Public Library, but we also have copies of all of those documents in our office as well.

MR. GORDON: Going back to your question. Over the last few years there have been about ten million gallons per year discharged in the Warm Waste Pond. Our number for 1990 for tritium -- I mean for cesium-137 was zero. For the year before it was .01 curies of cesium-137, before that it was .02. I mean it essentially has dropped off.

MS. GREEN: This is the question and answer session for the Perched Water System for TRA. Before we move into the official comment period, if you would rather not come to the microphone, please feel free to write your question on a card and raise your hand and Reuel Smith or Mike Coe will collect the cards and bring them up to the appropriate person to answer the question.

If would you like to use the microphone, please feel free to do so. I just ask that you please provide one question at a time so that we can answer the first one before we go on to the second one. Do we have any questions, any more questions on the Perched Water Proposed Plan?

With that, I guess we'll move on to the oral comment portion of this meeting to receive formal comments for the record on the Perched Water Proposed Plan.

During this portion of the meeting, the agencies will listen to your comments, but we will not respond to them tonight. They will be responded to in the Responsiveness Summary that will eventually be in the Record of Decision after a decision has been reached.

I remind you again that a tape recorder is in the back for anyone who wants to make a comment but wishes to do so in privacy.

If somebody makes a statement which DOE, EPA or the State would like some clarification about, or would like additional information to clarify what the comment is, we may ask you for some clarification. This is just to make sure that we understand the comment so that we can evaluate it for the final decision.

Reuel, do you know how many people have signed up to make official comments?

MR. SMITH: We had two question marks so far.

MS. GREEN: I guess I'll remind you that written comments have the same weight as oral comments, and any comment that we receive by the close of the comment period on August 5th will be considered in making the decision and will be responded to in the Responsiveness Summary. If you would like to make an oral comment and can't fit all of your comments into the five minute period, or think of something after you go home, please feel free to submit the additional written comments prior to August 5th.

With that, can I see a show of hands for people who would like to make oral comments for the record. So we have one person.

Would you like to make your comment at this time?

AUDIENCE MEMBER: My name is Carolyn Hondo from Burley. I'm speaking on behalf of the FOCUS area group. Please bear with me, these are kind of like notes that I'm reading from.

We would like to see the information on how low are low levels of radioactivity which is in the brochure instead of having it say low. It would be more helpful for us that can't run down to Twin Falls and look up a bunch of stuff.

We feel that continued use of the Warm Waste Pond is the clearest indication of INEL's misguided priorities. Not only is INEL continuing to add radioactive contaminants to a cleanup site, which has been identified for over five years, but also the additional water will continue to reach previous contaminations further down into the aquifer. #T2-1 P-20

Moreover, the Environmental #T2-2 P-20

Protection Agency and the State of Idaho are remiss in their respective enforcement responsibilities for not closing down the Test Reactor Area pond. #T2-2 P-20

EPA and the State would have full recognition, RCRA has the mixed waste sites, and therefore under their jurisdiction the plan fails to mention that the TRA has 49 solid waste management units. These include leaching ponds, underground tanks, rubble piles, cooling towers, waste injection wells, trench drains and assorted spills where hazardous and mixed wastes exist. A reader of INEL's Plan might be led to believe that the Warm Waste Pond and the contaminated perched water are the only problem areas at TRA. Additionally, the pond has been in continuous use for 35 years. #T2-3 P-27

We question DOE's characterization of the size to the perched water contamination plumes because of the location and depth of the monitoring wells. The State of Idaho's review strongly suggests that wells along the north and northeast margin of the network are too deep to intercept or represent water levels in the deep perched water zone. That is, the deep perched #T2-4 P-01

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water zone may extend farther to the north and northeast than previously recognized by DOE. #T2-4 P-01

The Plan's listing of contaminants fails to list iodine-129 and plutonium-238, 239 and 240, which were found in the TRA leach pond plankton in concentration ranges from 40,000 to 400,000. #T2-5 P-16

Due to iodine-129's 17 million year half-life and plutonium's 24,000-year half-life, these isotopes are considered permanent contaminants in the environment by EPA.

Readers of the Plan deserve more information than they exceed federal safe drinking water standards or a footnote stating a standard of 4 millirem per year. The standard for cesium-137 which is not stated in the brochure is 200 picocuries per liter. This places cesium-137 1,315 times over the drinking water standard. Americium-241 is 140 times over, strontium-90 is 570 times over, and tritium is 92 times over the drinking water standard. #T2-6 P-05

TRA lies immediately less than two miles up gradient to the Big Lost River. Considerable uncertainty exists as to #T2-7 P-08 contaminant transport time within the aquifer due to the existence of lava tubes, etc., in a very non-homogenetic geology of the Snake River Plain Aquifer. #T2-7 P-08 Moreover, DOE's contention that there is no current use of the perched water or contaminated Snake River Aquifer in the vicinity of TRA and that only considered use of the area in 125 years is totally unjustified. #T2-8 P-14 P-15

Plutonium-238, 239 and 240 concentrations in the TRA leach pond as previously cited has been studied at length in a 1987 INEL report. This report stated that the highest plutonium concentrations was found in net plankton.. Plankton concentration ratios ranged from 40,000 to 400,000 for the plutonium isotopes and varied with sampling dates. These values reflect to efficiency with which plutonium is taken up by plankton.

The plutonium figures are relevant when considering that the migratory water fowl are eating the plankton and moving off site, and potentially into Idahoans' diet. Two other DOE sites, Savannah River and Oak Ridge, have had problems containing radioactivity on site.

The decision by the state, #T2-9 P-24

DOE-Idaho and EPA to do nothing on interim actions on the TRA perched water is an affront to common sense and demonstrates blatant disregard for Idaho's most valuable resource, #T2-9 P-24

groundwater. Contaminated water in the perched zones must be pumped and treated to minimize further migration into the rest of the aquifer. The federal government must never again be allowed to foul our waters and just walk away. Monies currently being channeled into nuclear materials production would more than adequately fund environmental restoration such as a pump and treat. #T2-10 P-22

MS. GREEN: Ma'am, we have a clarification.

MR. HOVLAND: We have a point or two we want to get clarified. In the 1987 INEL Report, so we can address this comment, do you have the specific reference for that and which pond specifically?

AUDIENCE MEMBER: On the plankton?

MR. HOVLAND: On the plankton.

AUDIENCE MEMBER: What I have is some numbers DOE-Idaho-12111 at 39.

MS. GREEN: Is there anybody else

who has changed their mind and would like to make an oral comment for the record?

Okay, if there are no other comments to be made at this time, why don't we take about a fifteen minute break before we start the second half of this meeting.

(A recess was taken.)

MS. GREEN: If anybody is interested, there is a copy of the Record of Decision on a separate action, the Ordnance Interim Action, if you'd like to see an example of a Record that describes the cleanup that will be undertaken for the ordnance remedial action.

It also includes the Responsiveness Summary. So if you want to see an example of how comments are incorporated and responded to in a cleanup decision, there are copies of the Record of Decision for the ordnance project in the back of the room.

From here on out we'll be talking about the Motor Pool Pond and the Chemical Evaporation Pond Proposed Plans. We have combined these two projects because they are similar in several ways. They are both relatively small units. They are both pond sediments, ponds that are no longer used.

We used a similar approach in evaluating them, and we're coming forth to the public with the same proposal of No Action for both of them.

I would also like to reintroduce representative managers for both of these sites, for EPA and the State DEQ. Sitting to my right is Dave Frederick. He's the manager for the Motor Pool Pond project. To his right -- I better look next time. Sitting to my right is Tom Stoops, the project manager for the Chemical Evaporation Pond, and to his right is David Frederick, the manager for the Motor Pool Pond. On your far right end of the other table is Howard Blood, who is the EPA manager for both of these projects.

With that, Nolan, I'll turn things back over to you. Nolan is going to give you a very brief presentation summarizing the Motor Pool Pond investigation, and then we'll have an opportunity for questions of clarification on his project. Then we'll move on to a presentation on the Chemical Evaporation Pond, followed by a very brief opportunity for questions of clarification. Then we would like to throw it open to more general questions and answers on either one of these two investigations.

After all of those opportunities for questions and answers, then we will have the formal comment period to receive verbal comments on both of the projects. So with that, Nolan, take it away.

MR. JENSEN: Thank you. I got to be involved with both of these two projects so you have to hear me again.

Like Lisa said, the next two projects are very similar. They are both ponds, or what used to be ponds, and now we're looking at the sediments in those ponds to find out if those sediments pose a risk. So again, that's what the bottom of this slide points out is that we're focusing on those sediments in the ponds.

This first one is the Motor Pool Pond at CFA. Here is a photograph of it. This photograph was just taken a couple weeks ago. It's just a small pond. It was taken out of use in 1985, so as you can see, there is no water in there any longer. This sign right here, if you can see that, is each of the sites that are going to be investigated under the agreement that I talked about earlier. The INEL has one of these signs placed there to point it out. That's about it on the pond.

Let me talk for a minute about what went on here. This is the service station out at the Central Facilities Area. The Central Facilities Area is kind of the central location that has a lot of administrative functions for the entire INEL. It has things like the warehouses there, the central warehouse, there is a cafeteria, a large cafeteria, several functions. One of those was this service station for the fleets and the equipment out there.

As you can see, it's a little bit bigger than the normal service station you have here in town, but that's the kind of function that it served.

What this is a picture of one of bays insides of the service station. And as the vehicles and equipment were brought in for service to change the oil and that sort of thing, contaminants were washed off or fell off the vehicles and went down into this grate inside. Then also on the outside of the building, there was this wash area, a wash bay. As equipment was washed here, the wash water went into this grate, it went into a sump, the sump then fed a pipeline. This is the building here, the service station, and the pipeline from those two sumps came out here and discharged into this ditch right just back behind -- you can't see it, but it was right in this area, then it flowed through this ditch, and then again into the Motor Pool Pond. So that is how the contamination got there.

Now, what was done was several samples were collected of the sediments in the pond. They were collected between 0 and 15 feet. There were 51 samples collected. That's essentially what was done.

What we found was, again, after going through the process that was described earlier, this is the list of contaminants, and the ones that were found to pose the greatest risk and the key ones are the ones that are highlighted here.

So basically now we've answered

that first question: What is out there?

Now, the next question is: How bad is it? What was done to evaluate the risk, was first of all, we looked at both the risk to workers at the Central Facilities Area and then we also looked at the risk of someone who would live there in the future, someone who would build a house there. In both cases what we looked at was what would be the risk to that person if they inhaled the sediments in the pond if they were blown up for some reason, if it came into contact with your skin, or what would happen with soil ingestion? We say eating the dirt, but however -- also direct exposure to the contaminants, the radioactive contaminants.

Should I clarify soil ingestion? Did I make that confusing? That's basically if you get dirt on your hand, if you were to eat something and your hands would get on your sandwich, that kind of thing. Any way that you could actually get those sediments into your body, that's what we're talking about.

What we found was that for the current situation out there, for the workers at the site, for carcinogenic risk, cancer causing risk, that comes out to about one in one million, the risk range.

Now, looking into the future, in the case that someone could go there and live and live at the pond, again, those same pathways were looked at, the inhalation, the dermal contact, the same pathways, if someone were to go out there and live, we looked at both 100 years in the future and 30 years in the future.

After doing the calculations for the cancer-causing contaminants, as you can see for the 30-year time frame it falls right in there. I don't remember the exact number, but you can see for the 100 years they are about the same, and they fall within what is considered to be the acceptable range by the federal regulations. That's for cancer causing contaminants.

For the non-cancer-causing contaminants, or the toxic contaminants, it fell below the hazard index of one. So again, according to the EPA criteria, it does not pose an unacceptable risk.

So as a quick conclusion, based on those risk numbers the agencies are, again, recommending that No Action be taken because there is no unacceptable risk at the site.

MS. GREEN: With that, I would like to take a couple minutes to see if anybody has any specific questions to clarify Nolan's presentation that they would like to ask to clear in their minds the presentation.

AUDIENCE MEMBER: I have a question. Why did you go down to 15 feet and then stop? Is that the point where you found no more contaminants? Is this a number that somebody picked?

MR. JENSEN: Nick, you took those samples, right?

MR. STANISICH: Yes. That's where the basalt begins at 15 feet, some places it's closer, some places -- the maximum extent of the sediments is 15 feet, sometimes it's only a couple feet.

MR. JENSEN: Where they hit the bed rock.

Anything else?

MR. GREEN: There will be an opportunity for general questions and answers after we complete the Chemical Evaporation Pond presentation here. Thank you, Nolan.

With that, I would like to introduce Randy Bargelt. Randy is the Waste Area Group 5 manager for EG&G Idaho. And the Chemical Evaporation Pond is within Waste Area Group 5, so he's going to present the information to support our proposal on the Chemical Evaporation Pond.

MR. BARGELT: As Lisa mentioned, I will be talking about Operable Unit 5-10, the Chemical Evaporation Pond at the Auxiliary Reactor Area, which is contained within Waste Area Group 5. At the Motor Pool Pond this investigation is confined to the sediments that were there but are not in the pond at this time.

This is a photograph of the Auxiliary Reactor Area 1. The Auxiliary Reactor Area is composed of four different facilities. This is one of the facilities within that area. These are two of the buildings there. This is the building that actually discharged to the pond between 1971 and 1988. This picture was taken when the pond was in operations.

If you notice here, you'll see that the pond does have some watermarks, the vegetation is green, denoting that it was putting water out there and the vegetation was feeding off the water and some of the wastes that were in it.

This is a schematic of the area. And as I mentioned, these are those two buildings, Building 627 housed -- during that period of operation of the Evaporation Pond -- housed print shops, materials testing lab and a radiological lab. And water was discharged in a 300 foot pipe to the Chemical Evaporation Pond here. And from our sampling, we noticed -- you'll see the star, an area of about 100 square feet that did have the highest concentration of contaminants.

This is another photograph of the pond. If you recall, the previous photograph where the green vegetation was, this was taken about two weeks ago -- you'll see the vegetation now has died. There has been no discharge to the pond since 1988. The area where that star was in the previous schematic was right here. This area here 100 square feet -- excuse me, the area of the star right here is about 100 square feet and right in here is an area where we noticed the most contamination.

This is another view looking to the north, and there is the vegetation there and the building that they feed it. You can see this berm here where the pipeline was buried that fed into this area right here.

From this point on the presentations are very similar to the Motor Pool Pond. During our site characterization or sampling, we did sample the pond in 1990, approximately 160 samples were taken in 40 different locations within the pond area, not just within the 100 square feet, but the pond is actually fairly large as you saw in the previous photographs. Sediments were sampled from the surface to a maximum depth of four feet. That was the top of the basalt. And also the sediments in that area, because the basalt is so close to the surface, averages two feet in thickness. We determined the nature and extent of contamination from that sampling.

Another familiar slide. These were the contaminants of concern that we did identify through the risk assessment as a result of the sampling that identifies the screening process in the risk assessment. And the contaminants, specifically radionuclides, are the ones that were risk factors in this project.

Again, we used the same risk scenarios: occupational, which is now, and residential at 25 years -- excuse me, 30 years and 100 years to evaluate the risk for a residential population that may live on the site. Evaluating the same pathways, being inhalation of dust, direct exposure to ionizing radiation, contact with your skin or ingesting the soil similar to the way that Nolan described it.

By the way, the ARA facilities all have been -- there is nothing working out there at this pond. There are facilities that are scheduled to be dismantled over the next period of time.

So there are very few workers that actually go to the site; basically the people in environmental restoration or security-type people, or the people involved in actually decommissioning the facilities.

So there is restricted access to the area. The current occupational scenario, which means right now, the risk is two excess cases of cancer in ten million.

The future residential scenario in 100 years from now, you'll notice the facility is gone. The evaporation pond is no longer in use, and if you set up a residence next to the pond within that facility, the future residential risk will be one excess case of cancer in one million.

For the carcinogenic risk, both at the 100-year scenario and the 30-year scenario, both risks fall within the acceptable risk range. At 30 years from now there was two excess cases of cancer in one million, at 100 years from now there would be one excess case in one million.

In the hazard index for non-carcinogenic contaminants it would be .09 and we would expect no adverse health effects from the other contaminants that you saw in the previous slide.

So the recommendation of the agencies is no further action, because this site does not pose an unacceptable risk to human health and the environment.

MS. GREEN: That it does not pose an unacceptable risk?

MR. BARGELT: Does not pose an unacceptable risk.

MS. GREEN: Thank you, Randy. Before we move on to the general question and answer session, does anybody have any specific questions of clarification on anything that Randy had in his presentation?

With that, I'll open it up to general questions on either the Chemical Evaporation Pond that Randy discussed or the Motor Pool Pond that Nolan discussed.

Does anybody have any questions that they would like to ask of the technical folks up here before we begin the formal oral comment session?

AUDIENCE MEMBER: My question is the health studies in terms of risk factor. Were they based on effects and risks to adults? Were children considered?

MR. JENSEN: Basically, when you look at the hazard index and the risk range that is considered to be acceptable in the regulations, those numbers are established based on if, like, infants were exposed to that. So those numbers are established assuming that already. Did that make sense?

AUDIENCE MEMBER: Yes.

MS. GREEN: Any other questions out there before we open it up to receive formal oral comments on both of these plans?

Okay. With that, let's get started on the portion of the meeting that is designed for you to provide your oral testimony to DOE, EPA and the State regarding both the Motor Pool Pond and the Chemical Evaporation Pond Proposed Plans.

Again, as in the Perched Water session of the meeting, we'll listen to your comments, but will not respond to them tonight. That will be done in the Responsiveness Summary after we have had an opportunity to evaluate those comments and their impact and incorporate them into a decision.

If someone makes a statement for which you folks would like additional clarification, additional information to clarify the comment, we will be asking the commentor for clarification so we can be sure that we understand that comment.

Again, for the record please state your name and spell it and identify which plan you're making your comments on before you make your comments.

Reuel, do we have people identified who would like to make oral comments?

MR. SMITH: I believe it's the same question marks. Some may have decided to comment during the presentation.

MS. GREEN: With that, I would like to see a show of hands for those of you who would like to make formal oral comments on either the Chemical Evaporation Pond or the Motor Pool Pond. So we have one person.

Since you're the only person and there is no question of fairness to others, please feel free to read your entire thing.

AUDIENCE MEMBER: My name is Carolyn Hondo. I'm from Burley, and I'm speaking on behalf of the organization FOCUS. The one comment that we had was concerning the Motor Pool Pond. We felt like the PCB, Aroclor-1260 -- I can't pronounce that word, in concentrations of 1,470 micrograms per kilogram, or I believe that's also parts per billion, that alone would dictate exhuming contaminants to prevent further migration to the aquifer, and that's what we would like to see done. Thank you.

MS. GREEN: Is there anybody who has changed their mind and decided to make oral comments on either the Chemical Evaporation Pond or the Motor Pool Pond?

With that, I would like to remind you that the comment period remains open until August 5, 1992, and you're free to submit written comments up until that time. Again, written and oral comments receive equal consideration.

I would like to thank you all for coming out tonight. And I appreciate the exchange of information, not only in the meeting, but the workshop sessions. I appreciate your involvement, and look forward to seeing you at our next visit here.

Thank you and good night.

(The hearing concluded at 8:45 p.m.)

PERCHED WATER, MOTOR POOL POND AND CHEMICAL EVAPORATION POND PROPOSED PLANS

BOISE, IDAHO
July 22, 1992
6:30 p.m.

SPEAKERS

Lisa Green, DOE-IDAHO
Nolan Jensen, DOE-IDAHO
Joe Gordon, DAMES & MOORE
Randy Bargelt, EG&G IDAHO
Dave Hovland, DEQ
Dave Frederick, STATE OF IDAHO
Linda Meyer, EPA
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BOISE, IDAHO, WEDNESDAY, JULY 22, 1992, 6:30 P.M.

MS. GREEN: I would like to welcome everyone to tonight's meeting. We're glad you were able to make it tonight, and we look forward to a productive meeting.

My name is Lisa Green. Tonight I will be serving a dual role. First, I will be acting as a moderator for the meeting, and as a moderator my job is to move us through the agenda in a timely manner and make sure that everybody who would like to participate gets that opportunity.

The other role I'll be playing tonight is remedial project manager for DOE-Idaho. In that role I'll be helping to answer some questions on the projects. I'll try to indicate those times when I'm putting on my DOE hat, otherwise I'll be the moderator.

We have two desired outcomes for this meeting tonight. The first is to gather public comment on proposed plans for the projects that you've seen at the back of the room earlier this evening. This is where at this time in the project DOE, EPA and the State of Idaho have come together on a technical recommendation for these three projects. And we're now bringing it forward to the public to seek public input on that recommendation, and the input will used in evaluating what the final decision for each of these projects will be.

The second goal of the meeting is to give you an opportunity to ask questions and for us to inform you about details of the projects that you're interested in and also to describe how they fit into the broader scope of the INEL cleanup efforts.

With that, in summary, we're here to listen to each other is the basic purpose tonight.

Let's take a look at the agenda that you received when you entered the room tonight. As you can see, we have three topics on tonight's agenda. The first topic is the Proposed Plan for Perched Water at the Test Reactor Area.

Following that presentation, we'll have a question and answer session to provide any information that you'd like to have explained in greater detail.

Then after we have completed the informal exchange of questions and answers, we'll provide a session to hear your official verbal comments on the Perched Water Proposed Plan.

After a short break then we'll move to the second part of the meeting, which is to discuss proposed plans on the Motor Pool Pond at the Central Facilities Area and on the Chemical Evaporation Pond at the Auxiliary Reactor Area.

These projects are very similar and we combine them in response to previous requests from the public to combine project topics when they are similar.

At this time I would like to introduce several individuals in the audience. The first individual is Reuel Smith. Reuel is the community relations plan coordinator for the INEL. This is probably also a good time to indicate to everyone that the public comment period on DOE's Community Relations Plan, which has been out for comment for -- two months, Reuel?

MR. SMITH: Yes.

MS. GREEN: The comment period has

been extended to September 1st, 1992, so if you haven't provided us any comments on that plan, which the purpose of the plan is to establish the process for community involvement in the cleanup program, if you haven't provided any comments and would like to, that period has been extended for you to do so.

If you have any issues related to the Community Relations Plan you would like to discuss, I think Reuel is your man. You might be able to talk to him on the break or following the meeting tonight.

The second person is Mike Coe. Mike is with the Public Affairs Office for INEL. If you have any questions or comments on subjects or issues outside the scope of tonight's meeting, you might speak with Mike. And then if he can't give you an answer tonight, I'm sure he'll get back to you with an answer.

Okay. That moves us to question and answer periods. If you have questions that you'd like additional information on, we have a couple different ways that you can ask them depending on your preference. If you'd like to just ask them orally, we've got a wireless microphone that we'd like you to use so that everybody can hear your question, including the court reporter here who is documenting the proceedings tonight. If you'd rather not use the microphone, we have cards on the chairs here that you can write your questions on and they will be -- if you'll hold them up -- Reuel or Mike will pick them up and deliver them to the panel, who can then provide answers for you.

Again, after each question and answer period there will be an opportunity then to provide formal verbal comments on the proposed plans.

With that, let me introduce the agency representatives that are up here with me. Dave Hovland of the State of Idaho, DEQ is to my immediate right. And Linda Meyer is with Region 10 of the EPA. I would like to give both of them a chance to make some brief opening remarks also. Dave.

MR. HOVLAND: Thank you, Lisa. I'm the State's INEL technical manager. I'm with the Division of Environmental Quality. My office is in Boise. Tonight I'll also be wearing another hat, and that's the hat of technical lead for the TRA. A person named Shawn Rosenberger is my counterpart in Idaho Falls.

Shawn can't be here tonight, but we have a couple of his staff that are going to be working on the other two proposed plans in the audience here. I would like to introduce first Dave Frederick. He's an environmental scientist and he's the lead on CFA. And Tom Stoops who is an environmental scientist, and he's the lead on ARA.

I'm also pleased to introduce Mr. Dean Nygard in the front row here. He's the State's manager for the Federal Facilities section, Division of Environmental Quality, and the Federal Facilities section includes INEL.

I would also like to mention that the State supports all three proposed plans, and we have been actively involved in every phase of the process up to these recommendations we're making this evening.

I really encourage on behalf of the State a lot of public comment. And I appreciate the people that have turned out at the public meeting tonight. The public comments are very important, because we want to make sure that we get your input so that we can work on the Responsiveness Summary and put these comments into the Record of Decision.

MS. MEYER: I'm Linda Meyer with the Environmental Protection Agency. And I'm the project manager for the Perched Water System that will be presented tonight, and I'll also be representing the other two plans.

As Dave mentioned, we've been involved -- our agency and the State have been involved in these projects since the initial project development and scoping. And this is the recommendation that we're presenting to you. This isn't a final decision. A final decision will be made once your concerns and your comments are addressed. So your involvement in this process is important. So I encourage everyone to participate.

MS. GREEN: Thank you, Dave and Linda. With that introductory note, let's move right into the presentation for the Perched Water Project. I would like to introduce Nolan Jensen. Nolan is the project manager for this proposed plan for the DOE.

MR. JENSEN: Now, my first question for you tonight is: Where shall I stand so you can see the slides? Way out here? Is that about right? Okay. I'll do my best. That's all I can promise.

You've heard a couple of things like CFA, TRA and ARA thrown out tonight. I would like to explain what those are. Those refer to the three projects that we're going to talk about tonight.

Three specific projects: The first one is the Perched Water System at the Test Reactor Area, or TRA. The second one is the Motor Pool Pond at the Central Facilities Area and the Chemical Evaporation Pond at the Auxiliary Reactor Area. We'll go into a little more what all those are exactly about later, but just as an overview, this is an aerial photograph of the Test Reactor Area.

This is the Test Reactor area, and these are some waste water ponds that we'll be talking about specifically later. This is the Motor Pool Pond or what used to be the Motor Pool Pond at the Central Facilities Area.

This is the Chemical Evaporation

Pond at the Auxiliary Reactor Area. Those are the three topics for tonight's discussion. Before we get into each topic, though, I wanted to explain a little bit about what is the process we go through with the agencies: DOE, EPA and the State of Idaho. What is the process we go through in coming to a recommendation on whether a particular site needs to be cleaned up or not. So I'm going to take a minute and go through that process.

First of all, as you might know, the INEL was placed on what is known as the National Priorities List. That's a list that is established under the Superfund Law, and any site that is deemed to pose potential threat to human health or the environment is scored and if it gets a high enough score it goes onto this list. Rather than go through that scoring process, I'll just tell you INEL made it on the list.

Once a site is on the National Priorities List, it needs to be investigated to find out if that potential threat is real, what is out there, and does it need to be cleaned up. So what is done a remedial investigation is conducted. And the remedial investigation answers a couple basic questions.

First of all, we want to find out what is there. What kind of contaminants are there? What concentrations? How far spread is it? Once we find that out, we need to calculate what risks those contaminants pose.

Once we have gone through that, we have made the calculations, come to a consensus on what should be done or what we think should be done, the three agencies come to the public with a proposal or a recommendation, and that is what is known as the Decision Making Process, and that's where we're at tonight on these three projects.

The Remedial Investigation has been done. And now we are coming to the public with our recommendation and want your input on it if you agree with us, if there are other things that you think should have been considered that weren't, or just in general, find out what your concerns are.

Once we have received your comments, then we will respond to each comment in a Responsiveness Summary that will all be documented in a document called the Record of Decision, and that Record of Decision is the final document that establishes what will be done at that site.

So let me go into that in a little more detail now. Again, the Remedial Investigation answers a couple of questions: What is the contamination out there? How far spread is it? Then what kind of risk does that pose to the human health and the environment?

Now, how do we decide if there is a risk posed? Once we looked at the site and collected samples and got information on what contaminants are there, what concentration they are at and how far spread they are, then there are calculations done on risk. And there are two parts of that. First, we look if there are contaminants at the site that are cancer-causing contaminants, carcinogens.

There is a federal regulation under the Superfund Law known as the National Contingency Plan, and that regulation is in the Code of Federal Regulations and it establishes for cancer-causing contaminants, it establishes a range of what is acceptable, what risk is acceptable, and it establishes a range between one in 10,000 and one in 1,000,000 incidence or potential incidence of excess cancer. Okay.

So the national average is probably up in here somewhere. So this regulation establishes that if this contamination at this time is not going to reach someone and cause a potential risk in this range or below, it's not a problem. If it's above that, then it is a problem and then cleanup needs to be considered. Now, that's for the carcinogens or the cancer causing contaminants.

For the other contaminants, things that are not cancer-causing but still have health effects, for example, they may do liver damage, kidney damage, cause rashes, cause heart conditions or things like, maybe, non-carcinogenic, things like that that you all know have an effect, those are considered.

What is done in that case is there is what is called a Hazard Index established. Basically what that is is there are studies done on each contaminant and studies done to find out how much of that contaminant it takes to cause an adverse effect. Once it is determined what concentration of that contaminant causes a bad effect, or any effect, then the concentration at the site is compared to that concentration to see if it's a bad enough concentration to cause a problem. Does that make sense?

So essentially if we are above this then we need to see if there is a potential adverse effect. If we're below that, then there is surely no adverse effect.

So those are the two things that we compared to once the risk is calculated, as compared to these two ranges, to find out if cleanup is necessary. Okay. That's the process we go through.

Now, how do these three sites fit into the picture at INEL? Under the Superfund Law there was an agreement established between DOE, EPA and the State of Idaho on how we would approach these investigations and cleanup. Since INEL is such a large facility, we couldn't go out and look at everything at once, so the INEL was divided into what is known as Waste Area Groups.

If you're familiar at all with INEL, you know that there are different facilities, I think it's 890 square miles, so the Waste Area Groups essentially correspond with those facilities with the exception of Waste Area Group 10, which is the all encompassing Waste Area Group that fills in all the gaps, and also that Waste Area Group focuses on the Snake River Plain Aquifer in its entirety from an INEL perspective.

So the three sites that we're going to be talking about tonight occur at Waste Area Groups 2, 4 and 5. Again, those are the Test Reactor Area, the Central Facilities Area and the Auxiliary Reactor Area.

Now, those Waste Area Groups are still not small, there is a lot to look at in each one of those. So the Waste Area Groups are even further divided into what is known as operable units. This gives you an idea of how these fit into the whole scheme of things. The Perched Water System is Operable Unit 2-12, the Motor Pool Pond is 4-11, the Chemical Evaporation Pond is 5-10.

And what this is trying to explain to you is that each of these Waste Area Groups will have several investigations, then there will be one investigation for each Waste Area Group at the end to kind of pull everything in that Waste Area Group together and look at it as a whole. Once that has been done, then there will be a final Waste Area Group 10 investigation and look at the whole INEL and we'll put together the whole picture from the smaller pieces. So what we're looking at tonight is three of the smaller pieces.

That goes through the process. Before we go into talking about the Test Reactor Area and the Perched Water, are there any questions on generally how we're going to approach this?

Now, with that background, when we talk about each of these operable units or sites, we'll kind of follow that format. So first of all, I'm going to explain what this operable unit is all about, the Perched Water at the Test Reactor Area. The specific focus of this investigation is to evaluate what is the effect of this perched groundwater, this contaminated perched groundwater, on the Snake River Plain Aquifer.

To explain that a little better, I

need to explain to you what the Perched Water is. What happens at the Test Reactor Area is as these operations go on at the facility, the wastewater from the facility is discharged to a series of ponds. This pond right here in particular, the Warm Waste Pond, has had considerable amount of contamination go into it. That wastewater goes into the ponds and it percolates into the subsurface. As it percolates -- here is a picture of a pond or a schematic of a pond -- as the water goes into the pond and it percolates downward through the layers of lava or basalt, it encounters layers of less permeable sediments, and there are two layers in particular that when the water gets down there it's slowed down, and as it is slowed down at those spots it causes it to mound up. So beneath each pond there is a small perched layer that forms, then at about a 150 foot depth there is a larger perched water body that forms. As you can see, that's about 330 feet above the top of the Snake River Plain Aquifer, which is down here.

This is a picture or schematic of the larger perched water body, this is the approximate outline of that. These black dots show the different wells that have been drilled at the Test Reactor Area. These are the outlying ponds. These are the wells, several of them to the aquifer, some of them draw water from the Perched Water body, but samples are collected from these wells and that's how we find out what contamination is there and what is out there, what concentrations.

Now, let me quickly hold this up. This is a core from a well that was drilled out there, and that's what it looks like in the subsurface. This is a basalt. This is also when you drill down in the Snake River Plain Aquifer that's what it looks like, that's what the rock looks like.

Now, like I said, there are interbeds in there and every so often there will be a layer of just regular soil or sand, and that's what those interbeds are that cause the perching. But essentially the aquifer looks like that.

Now, if you look at that, you will see that water won't flow through that very well, but what happens is this basalt is also fractured so the water is sitting in those fractures, so it's not like there is a big pool of water or big tank of water down there. It's just the water filling in the void spaces in rocks and sediments.

Now, what I've done, I hope, is answered the question: What is out there? How do we find out what is out there?

Now, I'm going to turn the time over to Joe Gordon. He's the person that did most of the risk assessment for the Perched Water System, and I'm going to let him tell about that.

MR. GORDON: Thank you, Nolan. This flow chart is meant to be sort of a pictorial representation of what the risk assessment process is. The first step is to evaluate the data that was collected out at the site, to evaluate what are the contaminants of concern out at the site. Then you use that data and follow essentially two parallel paths, the toxicity assessment and the exposure assessment.

In the toxicity assessment you evaluate what are the relative toxicities of each of the contaminants of concern from both a carcinogenic and non-carcinogenic standpoint. Then over in the exposure assessment, we've done a pathway evaluation where we've looked at how contaminants and water flow through the Perched Water System and into the Snake River Plain Aquifer, and then how people or ecological receptors might be exposed out at the site.

Then those two paths come back together in the risk characterization where the exposure and toxic effects are combined.

So the first thing there was the data evaluation to come up with the contaminants of concern. The contaminants of concern were arrived at by taking a look at what are the contaminants out at the site, which would contribute to greater than one percent of the risk at the site. So that way we can focus the risk assessment. And the ones that are highlighted there are the ones that turned out to dominate the risk at the site. Those are chromium, cobalt and tritium.

The exposure to a resident out at the site was evaluated by developing a hypothetical scenario where someone goes out there after TRA operations -- after the Test

Reactor Area operations are completed, which is anticipated for 25 more years, and at the end of the institutional control period someone would actually go out there, install a well down to the Snake River Plain Aquifer directly below the Perched Water System and drink all of his water, irrigate his crops, feed his animals and he would eat all of his -- essentially all of his diet would be derived from the site.

Then we also evaluated ecological receptors. Vegetation was evaluated by looking at uptake of contaminants through irrigation. Herbivores were evaluated by looking at their intake of that vegetation, which is taken in the groundwater as well as direct ingestion of groundwater and soil contact. Then carnivores were also evaluated by looking at all these same pathways with the addition of consumption of the animals at the site.

Now, in order to do that we constructed a groundwater model whose purpose was to predict concentrations of contaminants in the Snake River Plain Aquifer directly below the Perched Water System. What we did was we put in a hypothetical well right at the site, right below here, and evaluated the flow of both water and contaminants down here and into the Snake River Plain Aquifer, and the well was screened for only 12 feet, so we are only taking the very top of the Snake River Plain Aquifer and evaluating the impacts from that well. Normally you would screen a well for 50 to 100 feet for domestic use. So that was a very conservative assumption. It overestimates the health risk.

The bottom line here is under the 125 year scenario, the risk at the site to a hypothetical resident were one in 179 million. Then as part of EPA's review of the risk assessments they went back and calculated at what point could someone actually go out there and live at the TRA and consume water from that well and still be within the acceptable range of risk, and that was calculated to be ten years.

Similarly for nonradioactive toxic effects, the risks for both of those time periods were found to be within the acceptable range.

So if there aren't any questions about the risk assessment range, I'll turn it back over to Nolan here.

MR. JENSEN: Just to kind of summarize this again. This last slide on the risk assessment was just that currently there is no one out there using perched water. So currently there is no risk because no one has come into contact with it. Then again, like Joe said, in ten years it would be safe. So we're fairly comfortable that no one is going to be out there within the next ten years, so there should be no problem.

That's what our recommendation is that based upon that risk assessment, because the calculations show that within ten years there is not going to be a nonacceptable risk out there, we are proposing that we do no cleanup on the Perched Water System. However, because this is based upon a model, a computer model that is predicting concentrations into the future, we think we need to keep an eye on that to make sure our predictions are correct. So we are proposing that we would monitor that situation and also monitor some of the basic assumptions that we used in coming up with this recommendation.

For example, one of the things we looked at was the Warm Waste Pond, which was one of the major contaminant sources. That pond is being taken out of service this year. A new pond is being constructed right now that's lined. So the model was based upon the fact that that pond goes away. So we'll come back and review and make sure all the things we base that model on and those calculations do really happen.

MS. GREEN: Nolan, before we leave that slide, I'm putting on my DOE hat to interrupt. I think we need to clarify we summarized that there would be no risk after ten years, but you also need to clarify that there is no unacceptable risk right now either, and that the ten year issue is for somebody moving onto the site, drilling a well and living there.

MR. JENSEN: Right.

This is just to give an idea when I said that we were going to monitor the situation, this is the kind of thing we would be talking about as far as monitoring. And that is we would pick the contaminants that were of concern, at least tritium and chromium we know are a major concern, so we would monitor for those contaminants in the water and we would pick out a number of wells, probably some in the deep perched water, some in the aquifer to make sure that the model calculations are correct. It would also have to discuss how often those samples are collected, whether they are collected once a year, twice a year or what not. Then also we would have to decide, okay, at what point do we stop monitoring or if this happens what do we do about it? What happens if we find out that our calculations were incorrect? Obviously, we would have to come back and revisit that decision.

So again, just in summary, that's what we're proposing. We don't think there is a problem out there now, but we also think we need to keep an eye on it to make sure that what we think is correct.

Any questions?

AUDIENCE MEMBER: My name is Joe Henscheid. I had two questions. One, what if the farmer in your model decided that he wanted to put his well in the perched water table instead of the aquifer?

The second question is: What agencies are involved in the monitoring plans that you're talking about? Is this a tri-agency plan or is it strictly the State of Idaho? How is that being done?

MR. JENSEN: So the first one is about --

AUDIENCE MEMBER: The first one is about the farmer putting a well into the perched water table.

MR. JENSEN: One of the things -- the perched water, the only reason it is there is because these wastewater ponds are there. If this facility wasn't discharging water, there would be no perched water, and one of the things that was calculated in the modeling was that as soon as these ponds go away, perched water also goes away.

AUDIENCE MEMBER: Is that even considering the occasional wastewater or floodwater that runs around there from time to time?

MR. JENSEN: This isn't within the 100 year flood plan, so I don't think we would have to worry about that. However, the only consideration would be rainwater.

AUDIENCE MEMBER: That's the sort of thing I was thinking about.

MR. JENSEN: So what we're saying is before that hypothetical farmer could move on, the TRA would have to be shut down and moved off. So basically no one could ever get to the perched water because it would be gone by the time we got there.

That's why we were concerned. Okay, let's say the perched water is gone, but what if this guy comes out and drills a well right beneath where it was, beneath where that contamination is? So what we're trying to do is pick the worst case that we could. When someone would actually go out there and drill a well in the worst spot before dilution could occur and if they drew water from that spot, what would be the effect?

MR. HOVLAND: If you look at page A-10 of the Proposed Plan, on the right-hand portion of the column, that's the periodic review that EPA and the State will be doing to ensure that the land status and assumptions that are made right now are consistent.

MS. GREEN: That's in response to your second question.

If I could interject in here?

MR. HOVLAND: He was talking about land use. It was for the first question.

MR. JENSEN: Do you want the second question answered now or --

MS. GREEN: We're obviously in a question and answer session now. If you want to use the note cards, write your question on the note card and Mike or Reuel will bring it up front. Especially if you have a softer voice, if you could use the wireless microphone that Reuel has so that the court reporter can document your question. If you could, ask one question at a time to make sure that we get them all answered and don't miss one.

So with that, any more questions?

MR. JENSEN: Let me answer your second question. The second question was: Who would be involved with that monitoring? Of course, this whole agreement is conducted by the three agencies: DOE, EPA and the State of Idaho. So we, at least we three, would be involved in that monitoring plan and come to a consensus on what exactly should be monitored.

There is other monitoring that goes on. USGS has a whole system monitoring work that they do out there independently from DOE, and also the State of Idaho has what is known as the INEL Oversight office in Idaho Falls and they do a lot of work out there as well.

MR. HOVLAND: The production well.

MR. JENSEN: That's another good point. The production wells, since that's basically the only water out there, there are some production wells located right here at TRA that draw from the aquifer, and they use those too for both the drinking water at the facility and for all of the industrial operations. And those wells are monitored continually to make sure that water is clean. So there is a lot of monitoring going on.

But when we talk about monitoring, we're talking about specifically what monitoring would be done to make sure that our recommendation is correct.

MS. MEYER: After this process, we go into a Record of Decision and it's the final decision for the site. And the components of the monitoring plan are going to be summarized in there and then the three agencies will be involved in the monitoring plan as well.

AUDIENCE MEMBER: Thank you.

MS. GREEN: Any more questions?

AUDIENCE MEMBER: I have something to say. It's not a question.

If all of your modeling proved to be inaccurate, then you gentlemen will be sitting here asking the same questions that we're going to be asking in the future. So that's what you have to look forward to, so your models had better be correct. But this Perched Water Aquifer that you have there, is that Perched Water Aquifer created by all of the evaporating ponds so therefore if you eliminate the evaporating ponds, you eliminate the aquifer, so there should be basically no problem with any farmer going in there putting a well into an area that has no water?

MR. JENSEN: Right. But what we're saying --

MS. GREEN: I just wanted to say, he would have to go deeper than the 150 feet, or whatever, you have to go into the Snake River

Plain Aquifer.

AUDIENCE MEMBER: But it wouldn't be in the perched, that's what I'm getting at.

MR. JENSEN: Maybe just on the model, one point of clarification, there is a lot of information out there. USGS has been collecting information for about 40 years, so when Peter Sinton -- this guy right over here -- he was the one that did the modeling work, he had a wealth of information to develop that model and check it to make sure that it represented the system that was out there. So before he even started using the predicted capabilities of the model, he made sure it fit what has happened in the past and we know what has happened. So we're fairly comfortable that it's giving us the right answer.

AUDIENCE MEMBER: On your risk assessment, how many years is this risk assessment taking place at INEL to determine the risk that is being brought about out there in that area?

MR. GORDON: Risk assessment has been going on for a number of years, but the specific Superfund risk assessment that's being done here has only been conducted since 1989 when they signed this Federal Facilities Agreement.

MR. HOVLAND: 19- what?

MR. GORDON: '89, that's when the agreement was signed last year. But this particular risk assessment, this study was started a little over a year ago. So these calculations have been done about the last year.

MS. GREEN: If I could put my DOE hat back on to clarify just so you understand that the risk assessment we're talking about here is for this specific project. We're not talking about -- you've probably heard of Dose Reconstruction Projects, that's not what we're talking about, that's a separate project that's ongoing that the State of Idaho is involved in.

Any other questions on the Perched Water Project before we start into the formal comment session on this project? There is a pretty thick report back there with a lot of information, and this is your chance to grill the technical people up here.

MR. SMITH: Lisa, if we could ask also, if there is not necessarily a question, if there is something else that needs to be explained or if you would like to go back to a previous slide and review something before the comment session, we could certainly do that also.

MS. GREEN: Anything on this project is open for discussion here, so if you didn't understand anything, if it wasn't clear, we have people here to answer your questions.

Going once, going twice. With that, I guess we'll start into the formal comment session here. This portion of the meeting is designed for you to provide your formal oral testimony to DOE, EPA and the State regarding the Perched Water Proposed Plan.

If any of you have brought prepared statements that you would like to have incorporated into the record, you can do that several ways. You can either read it over the microphone or you can provide a copy of the statement to Reuel Smith, who will then have that entered into the record.

There is also a tape recorder in the back of the room. If you don't want to give your testimony in front of an audience and wish to do so privately, we have that setup arranged, or if you either choose not to provide oral comments or want to add to the oral comments that you give, written comments receive equal consideration as the oral comments, and we have some comment forms here and the address to send them is printed on the back of the agenda, I believe, and also on the back of the comment form.

Do we have anybody signed up for formal comments? Is there anybody else in addition to the person who signed up to comment who has changed their mind and decided that they would like to provide oral comments also?

AUDIENCE MEMBER: I signed up.

MS. GREEN: Anybody else? We usually limit five minutes in order to ensure fairness, but say what you need to say and take as long as you wish to.

Before you do that, I would like to explain what happens to your comments after you have made them. After the comment period has ended, DOE will prepare a summarization of the transcript of oral and written comments, then the three agencies get together and evaluate all the comments and prepare responses to those relevant to the topics in a document. That is called a Responsiveness Summary, and that becomes part of the Record of Decision, the final Record of Decision for the Remedial Action for the project.

Everybody who has signed the attendance register at the back of the table and everybody who provides written comments on the project will receive their own copy of the Responsiveness Summary in the mail.

Again, we have a court reporter to transcribe the meeting. Before you start your comment, please state your name and spell it for her, and that's the end of the instruction. So if you'd like to provide your oral comment, please step up to the microphone. Anybody who changes their mind after this gentleman gives his comment is welcome to provide a comment.

AUDIENCE MEMBER: Good evening, ladies and gentlemen. I'm Michael Ushman, U-s-h-m-a-n, from Emmett, Idaho. And I have been following this for almost two years. As a matter of fact, I agree that the No Action is the best way to go on this, except that I have

#T3-1
P-23

some problems with the mitigation that comes about through the No Action such as your new facilities that you're installing the lined evaporating new pond to eliminate some of the problems that you had in the Perched Water Aquifer.

I don't really believe that the evaporated ponds are the answer to the Warm Water Waste pond due to the krypton-85 and tritium that is present there that does cause air pollution. I think there is one thing that has never been mentioned is the krypton-85 which is present in your residual repository at INEL that you're going to dismantle.

There is no mention of what is going to happen with the precipitants in that unit when it is either filled with concrete or removed, which has a lot of radioactive particles in it.

I have done some studying on that, and I believe that it is proper to do something underground at the site due to the enormous cost involved in moving that repository, which amounts to $8 billion. So I think there needs to be a little research there conducted on that facility.

On your Cold Water Waste Pond, there is what is known as an ultrasound water or Reclamation Program that has been implemented at China Lake Naval Weapons Center in Ridgecrest, California, and all of this water can be recirculated, reused very feasibly by just cleaning it up. So therefore you can recycle it.

On your Warm Water Waste Pond or your warm water from that residual repository, I don't understand why this water cannot be put into an enclosed binary system and recycled continuously on an on-surface containment area where the precipitants can be removed periodically and that way we can eliminate any possibilities of any air pollution from the tritium or the krypton-85. #T3-2 P-22

MR. HOVLAND: I might want a clarification. Are you still talking about the Cold Waste Pond or the Warm Pond?

AUDIENCE MEMBER: I'm running the two together there. The warm is with the krypton and the tritium, while the cold is just the nonradioactive wastewater along with their sanitary waste pond. All of this water can be actually reused. I think it will be necessary in the future to do this.

We talked a little bit -- it's not on here -- but the Motor Pool Area, which I was talking about this evening over here. I'm usually not in favor of cleaning up a site, which was the evaporating pond there, through incineration, but in this case I believe that it would be feasible under a controlled condition to incinerate the soils in that area, but it would have to be a controlled heat burner to bring it down to 99.999, and then the residues mixed with cement and then disposed of. But if you want to contact someone on this ultrasound water reclamation area you can contact a Dr. Dale Bennett of China Lake Naval Weapons, Ridgechest, California 93555. This is a brand new process.

That's all.

MS. GREEN: Before you leave the microphone, I want to make sure that we understand the second part of your comment was regarding the CFA Motor Pool Pond?

AUDIENCE MEMBER: Yes, because that

was included originally in the Cold Water Waste Pond -- I mean not the chemical but the Sanitary Waste Pond. That's where the washing down of all of the trucks and everything went into that particular area. Am I correct?

MS. GREEN: I think we have a little confusion here between sites. The first thing I want to say is that the CFA Motor Pool Pond we are having a separate comment session later in probably a half an hour or so after we go through those presentations. If you would like us to put the comment that you just made on the CFA Motor Pool Pond in the record at that area so you don't have to provide it again, we'll do that. I think we probably -- at the break here, as soon as we're done giving comments, I think these gentlemen can clarify the location and relationship of these ponds that you're describing.

AUDIENCE MEMBER: Okay.

MS. GREEN: Is your comment complete then?

AUDIENCE MEMBER: Yes.

MS. GREEN: Thank you. Is there anybody else who wishes to provide oral comments for the record this evening on the Perched Water System? Okay.

With that, we'll take a brief 15 minute break before we begin presentations on CFA and ARA Ponds.

(A recess was taken.)

MS. GREEN: So let's move on to the second segment of tonight's meeting. From here on out we'll be talking about the Motor Pool Pond at Central Facilities Area and Chemical Evaporation Pond at the ARA.

As I mentioned before, we combined them because they are similar. They are similar in several ways because they are both relatively small waste sites and they are both focused on pond sediments, sediments of ponds that are no longer in use anymore.

We used a similar approach to characterize and evaluate risk and we've ended up with the same recommendation for both of them, so that's why we kind of combined them together for presentation purposes.

At this point I would like to reintroduce the prospective project managers on these sites for EPA and the State of Idaho.

Dave Frederick on my right is the project manager for the Motor Pool Pond and Tom Stoops on Dave's right is the project manager for the Chemical Evaporation Pond. Linda Meyer will be representing EPA for both of these projects.

With that, I would also -- in order to keep everybody on their toes we're going to change the way we approach the second half of the meeting and that we'll give a presentation on the Motor Pool Pond and provide an opportunity for any specific questions of clarification, then go directly to the Chemical Evaporation Pond presentation. Then we'll open it up for question and answer, general questions and answers on both of those projects before we go into the public oral comment portion of the meeting for both of those plans.

With that, I'll turn the floor back over to Nolan Jensen, who is also the project manager for the Motor Pool Pond Project.

MR. JENSEN: The second project that we're going to talk about tonight is the Motor Pool Pond. And the thing I would like to point out on this one is what we're focusing on in this project is just the sediments in the pond and what potential risks those sediments in that pond could have to the human health and the environment. So we're focusing on the sediments in the pond.

This is a photograph of the Motor Pool Pond or what used to be the Motor Pool Pond right here. And just for your information, again, they stopped using the pond in 1985 so it's dry now. As you can see this little sign right there, this indicates -- if you're interested -- is that at all of the sites at INEL that are going to be evaluated under this agreement, we put signs out there on all those sites, so this is one of them and it has its sign.

Now, what happens -- this is the service station at the CFA or the Central Facilities Area. As you can see, it's a little bigger than your normal service station, but essentially it's just a place where they take the fleet buses and equipment out there and take them in for maintenance. So that's the service station.

The next picture shows the bays inside the service station where they would do degreasing or greasing and lubrication and that type of thing. As like the grease and oil and things could fall off of the equipment from the vehicles, it would go down into this grate and into a sump. On the outside of the building there is a wash area where they would wash vehicles and buses and equipment, and the wash water would go down into this grate, and again, into a sump.

Again, this next photograph shows -- by the way, right back here is where that building is -- and the wastewater would go into those sumps and into a pipe, the pipe would run out to the east here and it flows out into this ditch right behind Bill who is standing here, and it would flow toward us in this ditch and then into the Motor Pool Pond. Again, I think on this photograph the ditch is off to the left. So that's the Motor Pool Pond.

What was done to evaluate this to find out what was there is several samples, 51 to be exact, were collected of the sediments in the pond. They were collected at various depths from 0 to 15 feet and analyzed for a variety of constituents to determine what was out there.

This next slide shows the key contaminants that were found out there. The ones that are in the highlighted areas are the ones that had the greatest risk and were most important in the risk assessment.

This next slide shows what was evaluated as far as how those contaminants could get to a person. What was done at this pond is we looked at -- since right now, again, no one can get out there and live right now; however, there are about 1,200 employees at the Central Facilities Area. So for the current situation we looked at the effect that those contaminants could have on workers. What was looked at was what would be the effect of inhalation of those sediments, contact with the skin, ingestion of that soil and exposure to any radiation.

So those are the things that we looked at, potential waste to the environment by those sediments. Those same pathways were looked at both for the occupational and then for someone who would live there in the future. Again, we looked at a resident who would live there.

An occupational scenario case for

the carcinogenic risk, the cancer causing contaminants risk, it showed that about one in a million was the range that the calculation showed. So again, that is within -- well, before we get to that, let's go to the next slide.

Now, it's about one in a million for the carcinogenic and for the non-carcinogenic, for the toxic effects. For someone who would go out and live right next to that pond it is about two in 100,000.

Now, let's compare that to those risk ranges that are established by EPA. For the carcinogenic risk, you can see for both the 30 year scenario and the 100 year scenario that for someone who would live out there it's within the acceptable range established in the federal regulations. And for the non-carcinogenic risk, again, comparing the concentration of contaminants that someone could be exposed to, comparing that with what is known to have an effect, an adverse effect, we're below that level, so about 70 percent of that level. So again, the calculation shows that we're below that acceptable range.

So again in the case of the Motor Pool Pond the agencies are recommending that No Action be taken because the risks there are acceptable.

Any questions on just that part?

MS. GREEN: At this time if you have any questions to clarify anything Nolan has presented in his presentation, please take this opportunity while it's still fresh in your mind and you'll have another chance to ask general questions about this project after the second presentation, but anything that you'd like to ask right now, please feel free to ask Nolan.

Thank you, Nolan. With that, we'll move on to another very brief presentation on the Chemical Evaporation Pond. I would like to introduce Randy Bargelt. Randy is the project manager for the Chemical Evaporation Pond. He works for EG&G Idaho.

MR. BARGELT: I'll be talking about Operable Unit 5-10, which is the Chemical Evaporation Pond at the Auxiliary Reactor Area. It is contained within the Waste Area Group 5 as you saw Nolan present earlier.

This investigation also is limited

to the sediments that are existing in the pond. This is the photograph of the Auxiliary Reactor Area No. 1. And there are four facilities in the Auxiliary Reactor Area. This is one of those facilities. This right here is the Chemical Evaporation Pond. As can you see, it is wet, and this photo was taken when it was in operation. It was fed through a discharge pipe from this building right here through the pipe here, and you can see the green vegetation showing it was receiving discharged water.

This is a schematic of the same area. In Building 627 -- well; during the time this was in operation, this pond was in operation from 1971 until 1988, and Building 627 housed a print shop, materials testing lab and a radiological lab during that time. This pond received some of those wastes. This star right here was an area of highest concentration in the contaminants that were found during our sampling.

This area here again, if you recall in the previous slide, this is where the green area was. The vegetation has since died off since 1988 because it hasn't received any water.

Right here is the end of that discharge pipe and this is the area of highest contamination within another larger area of contamination which is about 100 square feet, which encompasses this area right here.

This is another photograph looking north to Building 627 here, and here are those plants here and the discharge pipe was right there.

Very similar to the previous presentation that Nolan gave on the pond, we did sampling of the sediments in 1990. We took about 160 samples from the entire pond -- could I see that first photo of the pond -- the samples were taken from this entire area here at 40 different locations. They weren't just confined to this area here in the 100 square feet. So we did sample the entire pond.

Those samples were taken from the surface to approximately four feet in depth. The reason we stopped at four feet is that's where the top of the basalt was. So we sampled the entire column of sediments. Also out there the sediments average about two feet in depth across the entire pond. By doing this we did determine what we feel was the nature and extent of the contamination.

Another similar site you've seen before basically on the risk assessment screening process, these are the contaminants of concern that were evaluated in the risk assessment, and the shaded contaminants here are the ones of most concern that we saw from the risk assessment.

We evaluated the same pathways and the same ways of exposure as the Motor Pool Pond from inhalation of any dust that would come off of the pond here, direct exposure to ionized radiation, ingestion of soil or skin contact of the soil or contaminants.

Since ARA is a facility that is not being used at this time, there is a lot less workers that are exposed on a daily basis now. So this facility will eventually be torn down. It also has restricted access. So under the current occupational risk scenario, the risk is two excess cancer cases in ten million.

For a future resident, if you set up a resident right next to the Chemical

Evaporation Pond in 100 years, and notice the ARA facility is now gone, the future risk at that point in time would be one excess cancer case in one million.

Both of these risks are well within the acceptable range of risk established by EPA. It was one in one million in 100 years, and evaluated at 30 years there was two excess cancer cases in one million.

The hazard index we don't expect to see any adverse effects from the non-carcinogenic contaminants, it's relatively low here.

We recommend on this one that there should be No Action since it does not pose an unacceptable risk to human health and the environment.

MS. GREEN: Do we have any questions of clarification on this specific presentation before we open it up for general questions and answers about both the Chemical Evaporation Pond and the Motor Pool Pond?

I guess we'll open it up for any general questions about either one of these two projects. Again, the remedial investigation reports that document all of the work behind these proposals, they are pretty big documents, and you have an opportunity here to ask questions to the technical folks, questions about both the projects. So please, I encourage you to take this opportunity.

Does anybody have any questions on either the Chemical Evaporation Pond or the Motor Pool Pond?

If we don't have any questions, I guess we'll begin the part of the meeting where we receive the formal oral testimony on both of these projects. Again, the DOE, EPA and the State will listen to your comments during this time frame. The court reporter will record them, but generally we will not respond to them except if we need clarification on them to be able to understand and evaluate them and respond to them. They will be responded to in separate Responsiveness Summaries for each of the topics.

Again, I just ask that you state your name and spell your name and identify which project you're commenting on at the start of your comments.

Is there anybody who wishes to make

oral comments on either one of these two projects tonight?

AUDIENCE MEMBER: Mike Ushman, U-s-h-m-a-n, from Emmett. I may be a little out of line here, but on the Motor Pool Pond and the other pond there, my basic concerns are not with those two ponds but with the new ponds being built. Are we going to discuss the new ponds in this segment?

MS. GREEN: There are no new ponds being built to replace these.

AUDIENCE MEMBER: You're going to build new evaporating ponds?

MS. GREEN: No, these ponds are no longer being used. The Chemical Evaporation Pond is no longer being used. There is nobody using the facilities that discharge to that pond anymore, and they will not be using them. That area is slated to be decommissioned and decontaminated so there is no need for a replacement pond there. At Central, the Motor Pool Pond, I believe -- and Nolan or Bill correct me if I'm wrong, that discharge is now collected in an oil/water separator.

MR. PIGOTT: It goes into an

oil/water separator, that was done in 1985. Now, the oil is collected and disposed of to meet the current regulations and the liquid goes to the sewage treatment plant. So it's been discontinued since '85.

AUDIENCE MEMBER: The pamphlet I got kind of throws me off, because when it's referring to cleaning up these areas, it's also referring in the plan for new lined evaporating ponds to take their places.

MS. GREEN: That's at the Test Reactor Area.

AUDIENCE MEMBER: Right.

MS. GREEN: So you don't have a comment, then, on the Motor Pool Pond or the Chemical Evaporation Pond?

AUDIENCE MEMBER: The Motor Pool Pond as he was explaining it, he was saying that they washed the trucks and equipment and the grease and things of this nature, but during your past washing of your vehicles you have taken in that area contaminated merchandise to wash the radionuclides from it. Will this practice continue in the new washing area?

MR. JENSEN: I'll refer to Bill,

again.

MR. PIGOTT: What they normally do on construction equipment is they decontaminate the equipment in an area where they are working, you get it down to as low level as they can possibly get it with the instruments that they measure with. But as you know, in any kind of construction equipment there is little cracks and crevices up there that may contain some dirt that may contain some radioactive material and there is still the possibility of not getting it all, although there it would be extremely low level.

AUDIENCE MEMBER: I think this should be brought up in your narration on this that it has been practiced in the past of decontaminating radioactive materials and equipment in that area through washing, which are collected in your collecting basins and things of this nature, which would be in your oil scrubbers and things like this.

MS. GREEN: With that, if there is no other oral comments on either of these plans, I would like to just remind you that the comment period is open until August 5th, 1992. Please feel free to submit any additional written comments prior to that time.

I would like to thank you all for your participation here tonight. We look forward to your involvement in future activities. With that, thank you and good night.

(The hearing concluded at 8:20 p.m.)

UNITED STATES DEPARTMENT OF ENERGY

PUBLIC COMMENT MEETING CONCERNING PROPOSED CLEANUP PROJECTS AT THE PERCHED WATER SYSTEM BENEATH THE TEST REACTOR AREA, MOTOR POOL POND AT THE CENTRAL FACILITIES AREA, and CHEMICAL EVAPORATION POND AT THE AUXILIARY REACTOR AREA

ORIGINAL

July 23, 1992
6:30 P.M.
University Inn
1516 West Pullman Road
Moscow, Idaho

Panel Members: Lisa Green, DOE-Idaho
Nolan Jensen, DOE-Idaho
Joe Gordon, Dames & Moore
Dave Hovland, DEQ
Linda Meyer, EPA

Also Present: Tom Stoops
Dave Frederick
Randy Bargelt

Presentations: Nolan Jensen, DOE-ID - Proposed Plan for the Perched Water System and Motor Pool Pond
Randy Bargelt, EG&G Idaho - Proposed Plan for the Chemical Evaporation Pond

Moderator: Lisa Green, DOE-Idaho

Reported by:
Nancy Towler, CSR

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I N D E X

Reported by Nancy K. Towler, CSR, Freelance Court Reporter and Notary Public, States of Idaho and Washington, residing in Lewiston, Idaho.

THURSDAY, JULY 23, 1992

MS. GREEN: I'd like to welcome everyone to tonight's meeting. My name is Lisa Green. Tonight I'll be serving in a dual role. Primarily, I'll be acting as a moderator. And as a moderator, I'll be helping to move us through the agenda in a timely manner, but also to ensure that everybody who would like to participate has an opportunity to do so.

The other role that I'll play off and on tonight is the remedial project manager for DOE-Idaho. And I'll be in that role to help answer any of your questions on these projects along with the other technical people we have with us tonight.

We have two major goals here tonight. And the first goal is to gather public comment on the three proposed plans that are out for public comment at this time. We're at a stage in the project where DOE and EPA and the State have reached a consensus on the technical recommendation for these projects. And now, we're bringing them out to the public to get your comments, your input on the technical recommendations. And we will use that in determining what the final decision for each of the projects will be.

The second major goal for tonight is to give you an opportunity to ask us any questions that you might have based on reading the proposed plans or any of the other information on these projects.

Let's take a moment to look at the agenda that you may have picked up when you entered the room tonight. As you can see, we have three projects that we'll discuss tonight. The first topic on the agenda is the proposed plan for perched water at the test reactor system -- Test Reactor Area.

Following the presentation, we'll have an opportunity for you to ask us questions and get answers from the technical people on that project. And then after all -- after all the questions have been answered, we will take time to receive your formal verbal comments for the record on this project.

Then after a short break, we'll move into the second half of the meeting where there will be a presentation on each of the proposed plans for the Motor Pool Pond and the Central Facilities Area and the Chemical Evaporation Pond at the auxiliary reactor area.

Now, these two projects are very similar; and in response to public comment previously that recommended that we put topics together in one meeting where they are similar, we have grouped these two.

At this time, I'd like to introduce several individuals in the audience. The first is Reuel Smith. Reuel is at the back of the room. He works as the community relations plan coordinator for the INEL.

This is probably also a good time to mention that the public comment period on DOE's community relations plan has been extended to September 1, 1992. And if you're not familiar, this plan is -- establishes the process for public involvement in environmental restoration activities for the INEL.

So, if you have any questions or issues related to the community relations plan, you might take this opportunity this evening to speak with Reuel about them.

The second person I'd like to introduce is Mike Coe. Mike is -- represents the INEL public affairs office. If you have any questions regarding INEL activities or issues that are not the subject of tonight's meeting, Mike is available to help get answers to those question.

And, Mike, did you want to make a statement about the availability of the site specific plans?

MR. COE: Yes. I just wanted to announce that the draft fiscal year '93 site specific plan is now available for comment. The site specific plan basically outlines INEL's environmental waste management plans, activities and opportunities for public participation for the coming year.

This year we're making the draft available for public comment so we can incorporate the public comment into the final fiscal year '93 site specific plan. If you want a copy, just talk to me during the break or some time; and I'll be sure you get a copy.

MS. GREEN: Thank you, Mike.

After each of the presentations tonight, you'll have an opportunity to ask questions on them. And we've got -- the court reporter here is recording the proceedings this evening. So -- so that she may hear clearly the questions, we'd like for you to use one of two approaches.

The note cards that you see on chairs are for you to write questions on. And then if you'll raise the note cards in the air, Reuel or Mike will pick them up and bring them up to the front of the room to be answered.

The second approach would be to use one of the microphones. I believe we have the wireless mike working this evening so you don't -- you won't need to come up front and use the mike. You can ask the questions from your chair.

Again, if you could please try to ask one question at a time so we can answer -- answer the first question before we go on to another one, we would appreciate it.

Then after each question and answer period is over, we will begin the formal comment period for receiving oral comments on the projects.

With that introduction, I'd like to turn the mike over to a couple of the agency representatives from EPA and the State. On my immediate left is Dave Hovland from the State of Idaho, and to his left is Linda Meyer. And I'd like to give them both a chance to make a few brief opening remarks.

Dave?

MR. HOVLAND: Thank you, Lisa.

I'm the State's INEL technical manager with the Division of Environmental Quality in Boise. I'll be wearing another hat tonight. I'm also the lead for the TRA area.

I have a counterpart named Sean Rosenberger in Idaho Falls. He's not here tonight, but two of his staff are here. And they're going to represent the State on two of the other proposed plans.

I'd like to introduce Dave Frederick. Dave's an environmental scientist, and he's the lead for CFA. His other colleague is Tom Stoops. Tom is an environmental scientist, and he's the lead for ARA.

I'm also pleased to introduce Mr. Dean Nygard. Dean is the State's manager for the Federal Facility Section in the Division of Environmental Quality, and this includes the INEL site.

I'd also like to say that the State supports all three of the proposed plans. The State's been actively involved throughout the entire process leading up to these recommendations.

I'd like to encourage public comment. We find it very important to get the public comment at this time because we're going to be preparing a responsiveness summary and completing a record of decision. And that's all I have.

MS. MEYER: I'm Linda Meyer with the Environmental Protection Agency. I apologize to anyone that was -- attended the technical briefing, and Wayne promised he'd be here. So, I hope I don't disappoint you; but I'll be representing the EPA for all three of the projects tonight.

I was the project manager for the Perched Water System. I'd just like to reemphasize that a decision has not been made on these projects. They are just recommendations, and your input is important in this process. So, I encourage everybody to participate.

MS. GREEN: Thank you, Linda.

With that, let's move right into the first proposed plan, the presentation on the Perched Water System at TRA. I'll turn things over to Nolan Jensen. Nolan is the DOE project manager for the Perched Water Project.

Nolan?

MR. JENSEN: Can you hear this? Okay. If we can get the technology down. Now, first question, if I stand right here, can everyone see?

Can you see past me from both sides? Okay. I'll
stay here then.

Okay. Like Lisa says, we're going to be talking about three projects tonight. First, the Perched Water System at the Test Reactor Area. You've heard a couple acronyms thrown around already. That's what we're referring to when we say TRA; the Motor Pool Pond at the Central Facilities Area or CFA; and the Chemical Evaporation Pond at the Auxiliary Reactor Area or ARA.

Let me just throw up a photograph of each of these sites right quick. And this is the Test Reactor Area or most of it any way, the outline of the facility; and these are the wastewater ponds that we'll talk about a little bit later.

This is the -- what used to be the Motor Pool Pond before it was taken out of use. And this is the Auxiliary Reactor Area number one, and this is the Chemical Evaporation Pond that we'll be talking about or, again, what used to be the pond, where the pond was located.

Now, before we talk about these individual sites, in order to get -- kind of set the framework for how we're going to discuss the sites, what I'd like to do first is just quickly go over with you again the superfund process and how we get to the decisions or the recommendations that we have come to, to bring to you tonight.

Okay. Some of you may know at the end of 1989, the INEL was placed on what is known as the national priority list. And what that means is that the INEL is now a site that has been deemed to have contamination or potential contamination that could pose a threat to human health and the environment.

Once a site is listed on the NPL, then we are obligated to go out and look at the potential contamination and determine what risk it poses and what type of clean up needs to be done.

So, this investigation is called the remedial investigation. And the remedial investigation answers a couple of key questions. First, it answers what's out there, what kind of contamination is there, and how much, how far spread is it. And then it answers, okay, what is the risk that that contamination poses.

Once we've gone through the remedial investigation, the three agencies come to a recommendation on what they believe the appropriate action is for that site. Once we have come to a recommendation, we bring that recommendation to the public; and that begins what's known as the decision-making process. And we are at that stage right now. We're coming to the public with our recommendation and asking for your comments on our recommendation.

When we receive the comments, we will summarize them and respond to them in a document called the record of decision. And that is the document that formally puts into place the decision for -- for the sites.

Okay. One more time, what are we going to talk to you about tonight? Each of the three sites has recently gone through a remedial investigation. And, again, as I mentioned earlier, the purpose of the remedial investigation is to answer these two key questions: What's out there? What kind of contamination is out there? And how bad is it, or what risk does it pose?

Now, when we get to the risk assessment process, risk is -- of the contaminant -- was looked at in two ways. First of all, contaminants are looked at, which are known to be carcinogens or potential carcinogens. And so, the first thing we do is assess the carcinogenic risk or cancer-causing risk.

So, the contaminants which are potentially known carcinogens are evaluated to determine what exposure someone would come in contact with. And then that exposure is compared with a risk range, which is established in a regulation called the National Contingency Plan. That's located in the Code of Federal Regulations in forty CFR three hundred.

And in that Code of Federal Regulations in the National Contingency Plan, there is a risk range that's established. And that is that a risk within the range of one in ten thousand to one in one million or below, is considered to be acceptable.

In other words, if -- if there is a chance of someone incurring cancer in a chance of one in ten thousand or blow, then that is considered acceptable, if that makes sense.

Okay. After the carcinogenic risk is evaluated, then the toxic or noncarcinogenic risk is evaluated. And noncarcinogenic risk is health effects other than cancer, anything from -- from a heart disease or an organ problem or skin rashes, whatever, those are the kinds of things that we're talking about with the noncarcinogenic risks.

Now that's -- the noncarcinogenic risk is looked at a little bit differently. Rather than a chance of -- of cancer happening or a chance of a health effect happening, what is done in the case of noncarcinogenic risk is EPA and others who study toxic effects of different chemicals or contaminants, they establish what is called a reference dose. And that reference dose is just a concentration of that contaminant which is known not to cause an adverse health effect.

And so, what is done is that the exposure from the site that is calculated is compared with that reference dose that is established by EPA or in the literature. And basically, what is done is you divide the concentration at your site by this reference dose. And if it comes out to one or less, then it is considered to not pose an adverse effect. If it is one or above, it may cause an adverse effect.

Okay. Now, how are we looking at these sites at the INEL? The INEL is a big place. It has a lot of different sites that we need to look at. Approximately four hundred of the sites out at

INEL are going to be looked at under this agreement.

So, tonight we're going to be talking about three of those sites. One, again, like we said, is at the Test Reactor Area. One is at Central Facilities Area, and one is the Auxiliary Reactor Area. These are known as waste area groups. It's just a term we came up with to help cut down the pie into smaller pieces.

After we have established waste area groups -- oh, before I move that slide, the first nine waste area groups, one through nine, essentially corresponds to the different facilities out at INEL. And then waste area group ten fills in all the gaps or encompasses all of the miscellaneous units outside of those facilities. And it also focuses on the Snake River Plain Aquifer as a whole.

Now, each of those waste area groups is still a pretty large piece of work. So, the waste area groups are further divided into what are known as operable units. And that is something that's discussed also in the regulation, the national contingency plan.

And so, what is done is these groups are further broken down into bite-sized pieces, if you will, in order to focus resources and come to decisions as quick as possible.

And so, what we're talking about tonight are three operable units within three waste area groups. So, what the concept is, is that we will look at the individual sites in each waste area group. Once each individual site is looked at, then there will be one investigation done for the entire waste area group. And that's -- these are these down here, the comprehensive investigation.

Once the comprehensive investigation look at the entire waste area group is completed, then the waste area group ten investigation will be conducted, which will look at the INEL as a whole.

And also, again, it will focus on the Snake River Plain Aquifer. Okay.

Yes?

MR. SMITH: We've had some other folks come since we asked before if people could see the slides. I wonder if we ought to ask that again.

MR. JENSEN: Am I standing in front of where you need to be? Why don't you come up here, Reuel; and I'll stand off to the side.

How about right here? Is that better?

MR. SMITH: If you can see around me, we can.

MS. GREEN: Now you're blocking --

MR. JENSEN: Okay. Are there any general questions on the process? What we're going to do now is we're going to talk about each of the three sites tonight. And we'll kind of walk through that process with each one, and you can see how we come to the recommendation.

Okay. The first one we're going to talk about is Perched Water System at the Test Reactor Area or operable unit two dash twelve. And what this investigation focuses on is out at the Test Reactor Area -- let's go ahead and put that next slide up -- out at the Test Reactor Area is one of the reactor research facilities at INEL. And this is the -- part of the outline of the facility.

And as the industrial operations go on at that facility, the wastewater from those operations is discharged to a series of wastewater ponds. This one right here -- there are three cells -- is what's known as the warm waste pond. That's one that we talked to you about last year. And that is one that is undergoing design for cleanup right now.

The warm waste pond is also the greatest source of contamination. But as these wastewater ponds, as water goes into them, the water percolates through the floor of the pond through the sediment into the subsurface.

Let's go ahead and do the next one.

MR. BROSCIOUS: Before you change that one, could you just ballparkish describe with your pointer where the plume is in relation to that aerial photo?

MR. JENSEN: I -- we'll have a -- give me one more slide, and we'll get to that. I've got one of that. It's not a photograph, but this one isn't big enough anyway.

MR. BROSCIOUS: Also, could you mention exactly what's -- what's going on at the -- at those facilities right now?

MR. JENSEN: Okay. As far as the industrial operations?

MR. BROSCIOUS: Okay.

MR. JENSEN: Okay. There were three reactors, and I don't claim to be an expert on what goes on in there; but this was what was known as the Engineering Test Reactor. That's this area right here. That was a research reactor. This is -- the facility in this area was known as the Materials Test Reactor. And then back in the corner, just off the photograph, is what's known -- back in this corner is what's known as the Advanced Test Reactor. This reactor in this reactor operations are ceased. They don't happen anymore. They shut them down. The only operating reactor right now is the Auxiliary Reactor Area back off to the left.

MS. GREEN: Advanced.

MR. JENSEN: Advanced, sorry. Advanced Test Reactor Area back off to the left. And basically, what that reactor is for, from my understanding, is to test different materials to see how they react or how they react to being bombarded with nuclear energy.

Is that -- for those of you who know more than me, is that about right?

MR. BROSCIOUS: Is the hot cell in there still functioning?

MR. JENSEN: I assume they have hot cells, but I don't know what -- anything about that.

MS. GREEN: There are hot cells there,

yes.

MR. BROSCIOUS: And is the fuel storage -- water storage test still functioning?

MR. JENSEN: I don't know.

MS. GREEN: Well, as part of the reactor facilities, there are fuel storage areas in the reactor facilities.

MR. JENSEN: Anyway, just -- this is the warm waste pond, again; and this is the cold waste pond. Those are two key ones that I want you to remember for later in the discussion.

Okay. So, what happens then is, as the water -- the wastewater goes into these ponds, it percolates into the subsurface. The subsurface is essentially interlayered basalt or lava rock, black lava rock, and layers of soil.

And what happens is the water goes through the subsurface. It reaches layers that are less permeable. And as it hits those less permeable layers, the water can't go through it as fast; and so, it slows it down; and it starts to mound up.

And so, under each one of these ponds, directly beneath them, there is a shallow perched zone. It's fairly small, directly under each pond.

And then it percolates finally through that layer and goes down. And about 150 feet, there is another layer, which is also less permeable, that slows the water down. And there is a larger perched water body that forms on that layer. And as you can see, the aquifer is about 480 feet deep.

Okay. Let's go ahead to the next one. This is the one that Chuck was interested in. That's the Test Reactor Area, again. The warm waste pond, the cold waste pond; and that's the approximate outer extent of the Perched Water System. That is the larger, lower perched water body. It's about a little more than a half a mile across and about three-quarters, maybe nine-tenths of a mile long.

MR. BROSCIOUS: Where are the two injection wells in relation to that?

MR. JENSEN: The big one is about right -- well, in fact, I think it's that well right there, that black dot. The other one, I believe, is this one right here.

MR. HOVLAND: Now, the other one, meaning the Well 53.

MR. JENSEN: 53, right. 53 was a shallow injection well that was used for a few years. And all these other black dots are monitor wells. In fact, we used the two closed injection wells as monitor wells at these sites.

MR. BROSCIOUS: And where is Well 65 in relation to that?

MR. JENSEN: It's one of those right -- I know it's one of those three.

UNIDENTIFIED PERSON: Could you give the dimensions of that again? I missed them.

MR. JENSEN: You can see it right there about --

UNIDENTIFIED PERSON: No. No, the scale.

MR. JENSEN: Well, that's the scale. Just approximately, I think it's a little more than a half a mile this way and a little less than a mile this way. And that's approximate.

So, what was done to find this information out, was these different monitor wells were sampled and water levels measured. So, that's how we went about gaining information on what this Perched Water System was all about.

MR. BROSCIOUS: In terms of monitoring wells outside of the perched water table area, you show relatively few of them --

THE REPORTER: I can't hear him.

MS. GREEN: Could you speak up a bit, sir?

MR. BROSCIOUS: I said in terms of the plume, you have relatively few monitoring wells outside of the plume area, especially to the -- what I assume is the southeast there. I wonder what evidence you have that that's the limit of the plume.

MR. JENSEN: Do you want to talk about that, Peter, for a minute? This is Peter Sinton, who was the one that constructed the groundwater model. We're kind of getting ahead of ourselves a little bit, so -- but that's all right.

MR. SINTON: Several of the wells for the deep perched system, the bigger system, the boundary of the system is defined fairly well around this perimeter because several of these wells are actually dry.

Now, on the northwestern side, there is some question --

MR. HOVLAND: Northeastern.

MR. SINTON: Northeastern, yeah. All on this boundary, there's some question about exactly where this -- this boundary is, but it's fairly close to this area right in here.

UNIDENTIFIED PERSON: Excuse me. I had understood that the State oversight committee had felt that on some of those wells that you had run them too deeply and, therefore, had missed the Perched Water System and that, in fact, that plume might be larger.

MR. HOVLAND: Well, actually, it was the Division of Environmental Quality. It was our group that noted that and made the comment. Basically, as we went through our comment resolution period in the modeling that Peter is going to present, that that edge as -- we might have to go back to that diagram showing the Perched Water System.

That edge, as it tapers out, is not completely defined; but it's close. And I think when we looked at it and went through the different comment resolutions and talked to the people who put the wells in, the U.S. Geological Survey and the type of modeling that Peter is going to be talking about or Nolan, you'll see that the modeling that they do takes the effect of the major portion of the perched water zone. And the little tapering edge doesn't really add that much to it.

So, what they're doing is looking at the maximum risk from that, the effect of that on the Snake River Plain Aquifer when they model. But I think it's going to be important to see the modeling that they did and then maybe revisit this.

MS. GREEN: If I could just interject a little here. We do have a question and answer period after the presentation. And if -- but I don't want to discourage you from raising questions that are key to your understanding along the way. So, if you have things that really need explained right now to understand, go right ahead.

UNIDENTIFIED PERSON: Yeah. On my left of that slide, what are the depths of those wells? Like the ones that are outside the plume?

MR. SINTON: Over here?

UNIDENTIFIED PERSON: Yeah. Keep going to the left outside of the plume.

MR. JENSEN: Over here?

UNIDENTIFIED PERSON: Yeah. What are the depths of those wells?

MR. SINTON: These wells go -- I believe they go down to the lower interbed, which is what this perched water body is on top of. I don't know the exact depths, but they go down to that interbed.

UNIDENTIFIED PERSON: And can you explain to me, just in lay language, how you read that well?

MR. SINTON: How you read it?

UNIDENTIFIED PERSON: Yes. In other words, if I understand it, there's a hole in the ground that goes down into the rock.

MR. SINTON: That's correct, yes.

UNIDENTIFIED PERSON: How do you determine at what level that perched water pool is located? How do you read the well?

MR. SINTON: Okay. Can you put the other bell-shaped curve on there?

What is done is a well is drilled. It's a hole in the ground. It's drilled down and, for most of those wells, they're drilled into these -- into this sediment right in here and completed with a casing and a well screen, which is open to the basalt rock in here.

And then after the well is completed, water will flow into it. And water will rise to the level that this perched water table is at. That's how we know where it is. So, where it's dry, the wells are completed out here on the periphery or the edge; and there's no water in them. That's how we know where the edge of this is.

MR. BROSCIOUS: What is your completion depth? What is the interval completion distance?

MR. SINTON: Most of the older wells are completed -- some of them are actually open. Other ones are completed such that they're across this entire interval. The newer ones, some are completed right at the top. Some are completed right at the bottom so that we can get an idea of vertical head distribution or hydraulic gradient.

UNIDENTIFIED PERSON: Excuse me. That was a great question, but I didn't understand what it meant. So, could you tell me what that gradient meant or where it's screened? You just explained where it was screened, but I don't know what that means.

MR. SINTON: Okay.

MS. GREEN: Do we have any -- any figures in the RI that show an example, a cross section of a well?

MR. SINTON: Yeah, we do.

MR. HOVLAND: I think that would be pretty helpful to see what that looks like.

MR. SINTON: Could we maybe draw it on

there? Okay. What Nolan has just drawn is a well. And the wells are drilled down into these sediments. And then what we do is we install a casing which goes on in the inside of the hole. The casing is cemented into place so it doesn't leak. And then the casing has -- it either has holes in it, or it has what we call a screen, which is almost like a screen on a -- you know, like your porch screen door, kind of like that. It's much more sturdy than that, but that's what it's like.

And that would be what we call the completion interval. And that would be where water would come into this well and rise up to this level. Or if you took a water sample, you took a sample, you took some of the water out of the well, that's where water would enter the well and come up; and we would take it out.

Does that answer your question?

UNIDENTIFIED PERSON: Thank you.

MR. JENSEN: And casing is just pipe in the ground. It's just a pipe in the ground.

MR. SINTON: Okay.

MR. JENSEN: All right. What I wanted to show you just before we talk about the risk assessment is when they drill some of these wells, they core them. And if you wonder what the basalt looks like down there, this is it. This is basically what the aquifer looks like and everything above the aquifer, just layers of basalt like this.

And then in between this, there will be layers of, like, sand or gravel as interbeds. And, as you can see, this has kind of got some holes in it. Those are where when the lava flows went out, there were gasses in them that caused these bubbles. But as you'll notice or if you've looked at them, you'd see that these holes aren't interconnected very well.

So, the water doesn't flow through the holes. This is pretty much just solid rock. But if you looked at it on a bigger scale, you know that there was fractures and cracks in the rock.

And so, when we talk about an aquifer or the perched water being down there, it's not like there's a big cave full of water. It's just that water is sitting in all the little cracks. But, at a certain level, those cracks are full of water; and above them, they're not. So, that's kind of the top edge of that Perched Water System.

Does that make sense?

MR. BROSCIOUS: The alluvium or the interbeds are not necessarily sand and gravel, are they?

MR. SINTON: Not all of them are.

MR. BROSCIOUS: Not if you've got perched water tables on them.

MR. SINTON: No. They're finer grained than sand and gravel. Some of them have clays or cinders in them. They're usually pretty fine grained.

MR. JENSEN: Kind of red clay looking things, really.

MR. SINTON: That's right.

MR. JENSEN: From the cores I've seen.

Okay. All right. So, that's what the perched water is in.

Now, the next slide, basically, what we've done so far is explain how we go about finding out what's out there. The next important part is, okay, we know it's there; is that a problem or not?

And what is done there is, we go through what's called a risk assessment. And what I'm going to do now is hand over the mike to Joe Gordon from Dames & Moore who did the work on the risk assessment for this project. And take it away.

MR. GORDON: Thank you, Nolan.

Well, this flow chart is a graphic representation of the risk assessment process. The first step is to evaluate the data that we've got out at the site when we went out and did a site investigation. And that data is applied in essentially two parallel pathways: the toxicity assessment and the exposure assessment.

The toxicity assessment, we evaluate those contaminants which -- from both a carcinogenic and a noncarcinogenic standpoint. And then over in the exposure assessment, we look at the pathways to humans and nonhuman receptors as well as uptake of contaminants through all those pathways.

Then those two parallel paths are brought back together in the risk characterization when we look at the impact of exposure and apply the dose response to those uptakes.

So, the first step was to come up with the contaminants that we are concerned with. And the way that we did that is we screened contaminants at the site and evaluated them to identify the ones that were going to contribute greater than one percent of the risk at the site.

And these are the ones that came out of that screening. The ones that are shaded here, are the ones that turned out to dominate the risk in the risk assessment.

Okay. To evaluate the risk at the site, we constructed an exposure scenario where we had a hypothetical resident farmer who constructs a well out at the site right into Snake River Plain Aquifer directly below the Perched Water System. And he takes all of his water for domestic purposes from that well, irrigates his crops, consumes crops grown at the site, feeds his livestock with those crops and that groundwater and consumes that livestock.

Okay. We also evaluated nonhuman receptors. We looked at vegetation by looking at uptake of groundwater. We looked at herbivores by looking at their uptake of groundwater as well as ingestion of vegetation that's irrigated with groundwater and direct soil contact that may have been contaminated by that groundwater that's pumped from the aquifer as well as carnivores who are exposed to the same pathways with the addition of other animals out at the site.

Okay. In order to do this, we constructed a groundwater model whose purpose it was to predict concentrations of contaminants in the aquifer over time.

Now, do we have a -- all right. Here, let's put this one up. Let's go to this one here. In order to do that, we looked at someone constructing a well and completing it in the Snake River Plain Aquifer directly below the site. And we looked at the screen intervals, that we talked about before, which was only twelve feet.

So, we looked at -- okay. We looked at contaminants flowing down from the deep perched zone to the Snake River Plain Aquifer and pumping just the top twelve feet of water from the Snake River Plain Aquifer so we didn't look at dilution from the rest of the aquifer.

If someone was to go out and install a well for domestic purposes, the screened interval would probably be something on the order of 50 to 100 feet. So, this tends to overestimate risks at the site.

MS. MINEUR: Excuse me. Could you repeat that where you say --

THE REPORTER: I can't hear her.
MS. GREEN: Speak up, please, Lynn.
MS. MINEUR: I'm just trying to -- on that diagram, are you telling me that a person is going to drill a 500-foot well?
MR. GORDON: Right. Okay. This is someone that goes out to the site to live, this would be 125 years in the future. The Perched Water System would not be there anymore. So, you would -- you would drill right through this and these contaminants -- well, the water won't be there anymore. And we assume that contaminants are still up in the surface water pond there.
Okay. That warm waste pond, we assume it's still there; and obviously, the Test Reactor Area won't be there anymore. We assume that the Test Reactor Area will operate for another 25 years followed by a 100-year institutional control period. Okay. So, this is -- this is a well that is completed down to the Snake River Plain Aquifer; but obviously, this water is gone up here.
MS. GREEN: Joe?
MR. GORDON: Yes.
MS. GREEN: If you could clarify, too, that the perched water is gone long before the

125-year period.

MS. MINEUR: I understand that. Where I'm confused is, I thought you said earlier that the Snake River Plain Aquifer is not a caveful or an underground lake of water; is that correct?

MR. GORDON: That's right.

MS. MINEUR: So, why are we drilling at 500 feet? Number one, what happens at 500 feet that's different than --

MR. GORDON: This is all dry. This is all going to be dry. You won't encounter water until you get down to 480 feet.

And, also, just a point of clarification, this well, doesn't matter when it happens, if somebody wants to get groundwater, they have to drill to 500 feet or they don't get it. Whether it happens today or tomorrow or whenever, as long as that perched water is gone.

MR. BROSCIOUS: But in 20 years, they could drill into the deep perch and probably still find water.

MR. GORDON: If the reactor runs for --

MR. BROSCIOUS: I know. But in 20 years --

MR. GORDON: There will still be some

perched water there, yes. One thing I didn't mention earlier was that the only reason that perched water is there is because those ponds are there. That's a man-made feature. That didn't used to be there.

So, when the reactor shuts down, they go away.

UNIDENTIFIED PERSON: Do you want to clarify that for me because the one reactor that's contributing the most to the cold water waste pond is going to go until 2007 and will not be completely decommissioned for 27 years.

MR. GORDON: Right.

UNIDENTIFIED PERSON: So, in 20 years it will still be there?

MR. GORDON: Right, and the model did assume that.

MR. BROSCIOUS: Did your model take into consideration in the process of drilling down to the aquifer, as in all drilling processes, there's a lot of mixing of all the drilling findings in the process of going down, the mixture that -- contaminants that would still be in the sediment beds even though there may not be water in it in 125 years?

MR. GORDON: Well, no. The health and safety aspects of actually putting a well in at the site were not considered. Is that your question?

MR. BROSCIOUS: They weren't?

MR. GORDON: No. I mean, it's a hypothetical well that we looked at. Basically, what we were trying to do --

MR. BROSCIOUS: Okay. But even hypothetically, you have to drill down through those contaminated sediments which will still have residuals in them for infinity. And in the process of drilling down through that, that the well casing, even the bits and everything, are going to become contaminated with whatever residuals are still there.

Did you include that in the model?

MR. HOVLAND: Joe, what he might be getting at, I think, is there are common practices where you can use telescope casing or you wouldn't have to be concerned, as he's talking about, just drilling a hole straight down there.

So, there's -- there's things that are inherent in good drilling practices.

MR. GORDON: Yeah. I think what you're getting at is not a key feature of potential risk at the site. I mean, if you're asking if we would have drilled right through the surface warm waste pond, we did not consider that.

MR. BROSCIOUS: Well, the contaminated sediments is going to be the whole width of the plume, the whole size of the plume. And they're going to still be there. And the -- you know, to assume that -- that -- you're assuming that there's going to be some high tech drilling operation that goes out there that knows that there's radioactive contamination in those sediments and those interbeds. And, you know, they're going to seal as they go down and try to do it the same way you deal with your monitoring wells. But you can't even drill monitoring wells down there without getting contamination in the process of going down. It screws up your sampling, even with current technology.

MS. GREEN: So, if I understand you correctly, you're wondering if we factored in to the risk assessment for that resident, the risk of doing the actual drilling.

MR. BROSCIOUS: Right.

MS. GREEN: Like airborne inhalation or whatever --

MR. BROSCIOUS: There's going to be residuals in the process that are going to get mixed up, and the first ten years they're going to pump out of there, they're going to be pumping --

UNIDENTIFIED PERSON: They're just going to inoculate, you know, with the drill. It's just going to inoculate that area of the aquifer with the contaminants from above. So, you have to take that into consideration, correct? The sediments fall into the hole.

MR. GORDON: Well, I think you have to take -- sit back and take a look at what we're talking about here. We're talking about a billion gallons of water that's spread over a one mile by a half mile area. And a cross sectional area of those contaminants in the sediments at that level right there is not going to be a key player in the --

MR. BROSCIOUS: Do you have data to support that? Have you tested the sediments?

MR. GORDON: We didn't do that calculation. I'm sure that it would show that it's not a key player in the risk assessment.

MR. HOVLAND: But, no, we didn't do that.

MR. GORDON: But, no, we didn't.

UNIDENTIFIED PERSON: Well, you said they were going to put it in right next to this pond. At the technical briefing, when I discussed it with the people, they said they were just going to leave -- when that top shallow perch zone went, it would go in two or three months, and that's where they're going to be. So, you've got lots of things in the shallow perch zone that are just going to be sitting there, some of them with long half-lives, that are going to be contaminants of concern. And it will be affected in that. I don't know how you can say it isn't part of it.

MR. GORDON: Well, we'll have to think about it. But that's not something we did.

MS. GREEN: It was not done in the risk assessment, and it's not a practice, I don't believe, that -- it's not a calculation that's called out in the guidelines for doing risk assessment, I don't believe.

MR. GORDON: Well, here's the key issue. The purpose of the risk assessment was to evaluate whether we should clean up the water, okay? And this operable unit is the water. Sometimes the -- the contaminants that are in this top 50 feet there, are part of a different operable unit.

UNIDENTIFIED PERSON: Part of this confusion comes in because at the technical briefing, nobody could decide what part of what operable units those contaminants were when they were in the shallow perched zone.

They were part of the shallow perched zone. But if they divide up, are they still part of the shallow perched zone, or did they go to the sediments that are on top of the pond? And nobody could decide, so we didn't really know where they were either. There was no real consensus found as to what was going to happen to those contaminants that were in the shallow perched zone.

So, you're telling me that they're going to be considered in an entirely different operable unit?

MR. GORDON: They'll have to be because what -- basically, what we talked about was the sediments in the pond, themselves, will be looked at as -- basically, what we do is try to come up with reasonable ways, the most reasonable ways, that people would be exposed.

And we've already identified each pond sediment as operable units of specific investigations. The perched water is one; but as far as those sediments down there, the only way that those would be evaluated, that I can think of right now, is in the final assessment.

MS. MINEUR: So, they're not going to be evaluated until the --

THE REPORTER: I can't hear that.

MS. GREEN: Lynn, can you --

MS. MINEUR: -- operable unit ten.

MR. GORDON: Operable unit ten is up here.

MS. MINEUR: Right. I'm aware of that.

MR. GORDON: Then, operable unit, I guess it would be --

MS. MINEUR: Thirteen?

MR. GORDON: Two dash thirteen will be all of the rest.

MS. MINEUR: I guess I need to repeat that again. The sediments I'm trying to --

THE REPORTER: I cannot hear her.

MR. GORDON: Do you want to use this?

MS. MINEUR: Are you saying that the sediments themselves under each of the ponds will be considered an operable unit with that pond? My question is where will the sediments, after the deep perched water has moved, evaporated, done its thing, where are they going to be considered?

MR. GORDON: Okay. Someone can correct me if I'm wrong; but I'm pretty sure that that will be considered in operable unit two dash thirteen which is the WAG-wide RI/FS.

MR. JENSEN: That's the only place they would be in. We've just got to remember to do it.

MS. MINEUR: We will remind you.

MS. GREEN: Those are the subsurface sediments, not the surface sediments, right? That's what you're talking about.

MR. GORDON: Right. And what we would look at when we did that is what are the reasonable ways people will be exposed to contaminants out there?

MR. JENSEN: And what Joe is trying to say is with sediments in the depth like that, it's going to be pretty tough to get them to people.

MS. MINEUR: All they have to do is drill a well.

MR. JENSEN: Right.

MS. MINEUR: But could you repeat that citation for me?

MR. GORDON: This one -- this perched water is operable unit two dash twelve.

Operable unit two dash thirteen will be all of TRA, all of the things that were not considered in any of the other specific operable units, one through twelve.

Do you remember this one here? Right here, the investigation of the whole test reactor area, okay? So, that will evaluate not just those sediments, but anything else that was -- any residuals that may have been left there from operable units two through twelve. Or anything else that didn't fall into one of those operable units will be evaluated on a WAG-wide basis.

And then, again, the entire site will be evaluated for -- in a sitewide Snake River Plain Aquifer Study.

MR. BROSCIOUS: Is that in 1999?

MR. GORDON: '98.

MR. JENSEN: '98 is the start of that.

MR. BROSCIOUS: It's not going to be pulled together until '99?

MR. GORDON: I don't know. Probably '99 or even 2000.

MS. GREEN: The final record of decision would be 2001, I think.

UNIDENTIFIED PERSON: When is two

thirteen scheduled?

MR. GORDON: I think it starts in '96, if I remember right, '95 or '96.

Okay. Well, the results of the risk assessment are that in 125 years the risk to a person who completes that well out at the site consumes all his water and all of his vegetables and livestock from the site, the risk to that individual is one in 179 million.

Now, as part of EPA's review of the risk assessment, they went through to figure out at what time, hypothetically, could someone go out there and drink that water under that same scenario, and we came up with ten years, actually, in the year 2000, and still be within the acceptable range of risk.

UNIDENTIFIED PERSON: Okay. In your documentation in here, because that was one of the things I looked at, when they went in 30-year increments for, I believe it was chromium and tritium, it falls within the acceptable limits thirty years after 1995. So, that's not ten years.

MR. GORDON: Actually, it's for someone who starts living there in 1995. I was conservative here and said someone who starts living there in the year 2,000 and lives there for a 30-year period.

UNIDENTIFIED PERSON: Okay. What it says here, The carcinogenic risk from tritium exceeds the acceptable risk range for the 30-year periods beginning 1990 and 1995. So, you're saying that it moves there -- it will be 40 years before --

MR. GORDON: It will be the year 2000. If you moved there in the year 2000, the 30-year period starting in the year 2000 is within the acceptable range.

UNIDENTIFIED PERSON: Okay.

MR. GORDON: So, the one that started in 1990 or 1995 was above. It exceeded the acceptable range; but the one that started the year 2000, is at the acceptable range.

UNIDENTIFIED PERSON: Okay. This is a person planting his vegetables there and drawing his water there?

MR. GORDON: Right. That starts in 2000 and lives there until 2030.

UNIDENTIFIED PERSON: Which one of you guys is going to volunteer for this?

MR. GORDON: I will.

UNIDENTIFIED PERSON: One of the

questions I have in the risk assessment is, if that person can live there until 2030, are we saying the incidence of cancer will not occur during that time period?

MR. GORDON: No. The incidence of cancer over that person's entire lifetime. 70-year lifetime is what's considered. The 30 years is how long the person lives there, which is the 90th percentile of how long someone actually lives in the same place.

UNIDENTIFIED PERSON: Okay.

MR. JENSEN: So, what he's saying is, the EPA is establishing some standards for evaluating risk. And one of those is that a standard calculation or a standard assumption in the calculation is that you assume someone will live there for 30 years. And that's why they were the 30-year increments.

MR. GORDON: Okay. Similarly, the noncarcinogenic health effects, the risk from noncarcinogenic contaminants, was also found to be acceptable for the 125-year scenario as well as for the 10-year scenario.

So, in summary, there are currently no unacceptable risks to members of the public since the site is restricted and perched water is below grade. And for the future on-site resident, the risk will fall within the acceptable range within ten years.

And with that, I guess I'll turn it back over to Nolan.

MR. JENSEN: All right. So, as you probably already know if you've seen the proposed plan, what is recommended for this site is that there will be no remedial action taken. However, because we did this based on predictions of what the concentrations will be, we're also recognizing that we need to monitor to make sure that those predictions are correct and that all of the assumptions that we based these calculations on are correct.

So, we do plan to monitor. And also the National Contingency Plan establishes that periodic reviews be done; in fact, that they be done no less often than every five years. So, these reviews would also be done by the agencies at least every five years and, perhaps, more often, if necessary, to make sure that what we have recommended, if we do take that route after public comment -- where shall I stand? -- that it's all right; that the assumptions are still accurate.

Okay. Now, just -- this isn't working is it? Okay. So, we just put this slide together to explain, after a couple of the other meetings when questions were asked, what -- you know, what are you talking about when you talk about monitoring? What does that mean?

And, basically, what it would mean is, we would need to go out and keep testing wells, especially for certain contaminants that we knew were risk drivers. And I just put tritium and Chromium up there because those are ones that we know are key contaminants. And we would need to monitor probably several wells in the aquifer, that are screened down in the aquifer, as well as some up in the Perched Water System.

We would have to make a decision on how often the samples would be collected and water levels measured and then, also, decision points for what happens if our assumptions are wrong. Obviously, we'll need to go back and revisit the decision. Or perhaps another decision is at what point do we change monitoring frequencies and things like that.

So, that's what we're talking about when we say we're going to monitor.

MR. BROSCIOUS: Is the State going to do split sampling?

MR. HOVLAND: The Division of Environmental Quality is not doing split sampling. The oversight program is involved in a lot of different sampling throughout, and there are people assigned to the Test Reactor Area. And that is an option.

MR. BROSCIOUS: But you're not doing it now? I'm saying the oversight program isn't doing it now?

MR. HOVLAND: Split sampling?

MR. BROSCIOUS: Yeah.

MR. HOVLAND: Specifically, they're not doing any split sampling -- are you saying related to this monitoring plan or just any split sampling?

MR. BROSCIOUS: Any split sampling at the test reactor.

MR. HOVLAND: Specifically, right now they're not; but they do have plans where they're incorporating a lot of different types of sampling. But the person to contact on that would be Mr. Flint Hall in Idaho Falls. And his phone number is 525-7300. And he's the person assigned to that group for the oversight group.

MR. BROSCIOUS: So, there is -- at this time, there's no independent sampling of the test reactor area?

MR. HOVLAND: Well, again, he has various plans in effect. And you'd have to check to see where he is on those.

MR. BROSCIOUS: Actual sampling plans?

MR. HOVLAND: Yeah. He's putting those together for the next couple of fiscal years.

MR. JENSEN: USGS does do sampling too, independent sampling at TRA. And I don't know how often, but -- and I don't know -- they do different wells at different frequencies, but they do independent sampling as well.

MR. HOVLAND: Now, there is sampling at the production wells for drinking water.

MR. JENSEN: Right. Right. EG & G does that for the drinking water.

MS. GREEN: Well, we've had lots of questions during the presentation. Since Nolan has completed his presentation, that brings us to the general question and answer session on perched water.

Does anybody have any other questions?

Yes, sir.

UNIDENTIFIED PERSON: It seems odd that you fragment the waste on top of the surface with the wastes that will eventually percolate into the aquifer. In other words, you're not saying that there are dangerous wastes tied up in the rock and sediment all the way down to the aquifer. What you're saying is that by the ground acting as a filter for these dangerous contaminants, that the water below this level will be okay to drink; is that correct?

MR. GORDON: Well, that is correct, yeah.

UNIDENTIFIED PERSON: So, in other words, if the contaminants are still there at a high level, but just tied up in the land, so, as far as we know, if there's no major disruption of the land, then they're tied up nicely and being stored for us?

MR. GORDON: Right. And they're detained.

UNIDENTIFIED PERSON: And how long would the decay process take before they'd be safe for somebody to bring a core up?

MR. GORDON: I didn't do that calculation, but several of the key contaminants have very short half-lives. In the near term, you know, over the next few years and probably until somewhere around the year 2050, somewhere in that range, the risk actually is driven by tritium, which has a 12-and-a-half-year half-life. Then that drops off, and the risk turns out to be driven later by cobalt-60, which has a five-year half-life.

So, the risk is dropping off very quickly.

UNIDENTIFIED PERSON: Yeah, but that's sort of what we know to be the risk today from exposure. In other words, exposure levels are not cast in concrete either. You know, we found that sometimes when risks were thought to be only for eight to ten years, to show evidence of -- of exposure, actually, after 30 to 40 years, there's significant numbers of people showing effects.

So, in other words, those have to be recalculated at times. Those are sort of unknown. So, I wonder about the wisdom of letting the model really let us feel peaceful about, you know, about some of the residents owning that property.

MR. GORDON: Well, I agree with some of what you're saying; but I think that the carcinogenic risk from radionuclides is something that we really do know quite a bit about. EPA regards them as "A" carcinogens with no threshold. I think that actually, radionuclides are some of the carcinogens that we know the most about.

MR. JENSEN: Also, another point, like Joe said, when we come up -- let me start over. The model -- all the model did was predict concentrations. That's the only purpose.

UNIDENTIFIED PERSON: At the end.

MR. JENSEN: Right. And then, as far as how toxic those contaminants are, those come out of EPA's literature. So, the model didn't do any calculations on that. Those were out of EPA standards.

UNIDENTIFIED PERSON: So, the exposure is after the land has acted as a filter to collect the contaminants?

MR. JENSEN: Right.

MS. GREEN: Chuck?

MR. BROSCIOUS: Well, with the continued use of the -- at least the Advanced Test Reactor and the cold waste ponds and what other -- what other unlined disposal sites that you have to the tune of something like 33 million gallons a year, that's going to continue to drive contaminants down through the -- through the interbeds just by virtue of the fact that the water, in its movement, is going to carry some of those contaminants with it.

MR. GORDON: Well --

MR. JENSEN: I was just going to say, right now, the pond that is putting the most water into the system is the cold waste pond. And --

MR. BROSCIOUS: Well, they're right side by side. They're both contributing to the perched water regardless. And you're adding water to that. And, you know, by virtue of the fact that that water is migrating down toward the aquifer, it's going to continue to take material and contaminants with it.

MR. JENSEN: I guess I would defer to Peter, but I think the key mechanism that's driving the risk here actually is water going through the warm waste pond. And when you're discharging water to the cold waste pond, that -- that inventory is not coming into contact with the warm waste pond or the shallow perched zone below the warm waste pond.

I don't know if Peter -- do you have anything you want to add to that?

MR. SINTON: That's basically what's going on.

MR. JENSEN: Okay. Let me read this one that came in on a note card. It's similar to what we talked about earlier.

And the question is, Under what operable unit or units are the sediments in the shallow perched water being evaluated for each of the four waste ponds and the retention basin and the Test Reactor -- at the Test Reactor Area, and when are they scheduled?

Oh, good, you gave me this. All right. This is the interagency agreement.

Let's see, the warm waste pond, as you know, we evaluated that last year and determined that that did need to be cleaned up. So, that one's already been evaluated. The cold waste pond --

UNIDENTIFIED PERSON: Excuse me, in the warm waste pond, my understanding was that it was an interim action.

MR. JENSEN: Right.

UNIDENTIFIED PERSON: And you told us, at that time, that no plans had been made to deal with those sediments.

MR. HOVLAND: Excuse me, what was the last part of the statement there?

UNIDENTIFIED PERSON: My understanding in that interim action is that the sediment under the liner, if the liner had not been breached, would not be looked at.

MS. GREEN: There's some confusion here. The warm waste pond doesn't have the liner. This is the project we brought out about a year ago today for public community.

MR. JENSEN: And what you may be talking about --

UNIDENTIFIED PERSON: Well, there's --

MR. JENSEN: Okay. Let me -- there are two -- there are two warm waste ponds, actually. One of them isn't built yet. One of them is just being constructed, and it will be constructed with a liner and with leak detection and all that stuff.

The new warm waste pond will be constructed this year to replace the old one. The old one is the one that we've already determined poses an unacceptable risk and needs to be cleaned up.

UNIDENTIFIED PERSON: Just which operable unit is it?

MR. JENSEN: That's two dash ten.

Okay. Now, the cold waste plan is two dash nine. And that is also -- two dash nine is the cold waste pond and the sewage lagoon. And that one is also undergoing evaluation right now, a preliminary one, a preliminary evaluation.

They'll be relooked at again, also, in the -- in the WAG-wide comprehensive plan. But we're taking samples of those this summer.

UNIDENTIFIED PERSON: So, when -- when -- on two dash ten, when can we expect to hear something about that?

MR. JENSEN: As far as public comment?

UNIDENTIFIED PERSON: Right.

MR. JENSEN: That was last year.

UNIDENTIFIED PERSON: And we won't ever hear about it again?

MR. JENSEN: Well, what will have to happen on that one, since it was an interim action, again from the comprehensive WAG-wide RI/FS, that will have to be looked at from that standpoint again.

Go ahead, Dean. Talk to them.

UNIDENTIFIED PERSON: The reason I'm asking this question is because we sit in these technical briefings, and it's very hard for us to keep track of this. And I realize it takes time, but if you could just keep telling us when we can expect to see these pop up again, it helps us to conceptualize how these pieces fit together.

MR. NYGARD: I was giving hand signals to Dave, but I'll just go ahead and answer the question myself. Just -- I think what you're asking is what's the status on the warm waste pond since the last time we were out for public comment on this.

The record of decision was signed on that by the three agencies, and the warm waste pond sediments will be remediated in accordance with that record of decision that was signed back in December.

The status right now is that we are in remedial design, and there are -- it's in a -- actually developing pilot -- doing some pilot test studies to determine how to extract the contaminants from that sediment to achieve the clean-up levels.

So, we're still -- we're still working on that project. If you'd like some more information on that, we can certainly give some more detail.

UNIDENTIFIED PERSON: Does that -- I'm just trying to get back to this. Does that include the sediments in the shallow perched water table?

MR. JENSEN: That did not.

UNIDENTIFIED PERSON: Where will that be dealt with?

MR. JENSEN: The only place for that, that I can think of, is in the comprehensive one. Because that interim action focused on the upper two feet of sediments.

UNIDENTIFIED PERSON: So, for the -- to make sure I understand this, for the warm waste pond, it was not handled in two dash ten, is that the sediments in the shallow perched pond -- that's all I'm asking about -- will be handled in two thirteen?

MS. GREEN: Can we -- Reuel, can you put up that layer cake slide so we can specifically make sure we've answered your question.

MR. HOVLAND: Actually, Lynn, I wonder if you're -- is the question the sediments in this interim action for the warm waste pond and the deep perched sediments --

UNIDENTIFIED PERSON: No. No.

MR. HOVLAND: -- will all be -- it's not

where those will be handled or reevaluated? Because basically, those are --

UNIDENTIFIED PERSON: I got the answer on the deep perched pond. My question now -- Mary's right. It was very confusing at the technical briefing. There are four waste ponds and one retention basin. They each have a shallow perched water zone, correct?

MR. JENSEN: Or have had.

UNIDENTIFIED PERSON: Okay. I am concerned about the sediments in those shallow perched water zones, or what used to be, and under which operable units for each of those five areas will those be considered?

MR. JENSEN: You're talking from here down?

UNIDENTIFIED PERSON: No. I don't want to talk from there down. Right there.

MR. JENSEN: Right there?

UNIDENTIFIED PERSON: Right there.

MR. JENSEN: Right.

UNIDENTIFIED PERSON: For each of those, which operable unit are they being considered under?

MR. JENSEN: It would have to be

thirteen, the comprehensive. Does that make sense?

UNIDENTIFIED PERSON: That just conflicts with the information we got last week. And that's why I'm concerned. Because last week was -- we thought we were told that the shallow perched zone would be dealt with the pond above it under those operable units.

I'm just saying that -- you know, I'm trying to get clarification. And that's why we're taking so much time, is we're trying to figure out where these are going to be dealt with.

MR. NYGARD: Okay. I think I remember some of that discussion. And there was a lot of confusion when people were talking about the shallow perched, what was being said. Were we talking about shallow perched sediments, or were we talking about perched water?

And my recollection, from the way I heard it, since I was in that room and --

UNIDENTIFIED PERSON: You should have been in our room.

MR. NYGARD: Well, I was in Idaho Falls for several meetings. But anyway, there was some confusion there. And I think what we were talking about -- we talked about the shallow perched --

since we've been talking about this amongst ourselves for so long, we immediately think water. And that's what we were talking about.

As far as the shallow perched sediment goes, that is in the issue for the comprehensive RI, the remedial investigation. That is how it is.

UNIDENTIFIED PERSON: Okay.

MR. NYGARD: Does that clarify it?

UNIDENTIFIED PERSON: Right.

MR. NYGARD: Clear as a bell? Okay. That's all there is to it.

MR. JENSEN: Does that answer this question adequately?

UNIDENTIFIED PERSON: Well, as long as the record shows what Dean just said and that corresponds to what actually happened, that's an adequate answer.

MR. NYGARD: I think the record does. It does now.

MR. JENSEN: And you will remind us.

UNIDENTIFIED PERSON: Yeah, we will.

MS. GREEN: We will remind ourselves, too, Nolan.

MR. JENSEN: Right.

MS. GREEN: Any other questions before --

yes, Chuck?

MR. BROSCIOUS: Could you tell me what the State budget request for both the oversight program and DEQ's work at INEL is for fiscal year '93?

MR. NYGARD: For '93? We're requesting for DEQ -- let's see, one point eight.

MR. BROSCIOUS: Oversight?

MR. NYGARD: I don't know oversight.

MS. GREEN: Any other questions about the --

MR. BROSCIOUS: Can you find out?

MR. NYGARD: I can.

MR. BROSCIOUS: How about EPA?

MR. NYGARD: I don't know.

MR. BROSCIOUS: Can you find out?

MR. NYGARD: Linda Meyer can address that question for EPA with respect to their budget. I don't know that myself.

MS. GREEN: Do we have any other questions specifically about the perched water?

Yes, sir?

UNIDENTIFIED PERSON: I have a question. Does the site occur on the flood plain of the Big Lost River, and what was the assessment of the risk for flood from the Big Lost River?

MR. SINTON: It's not on the flood plain.

UNIDENTIFIED PERSON: It's not?

MR. SINTON: No.

MR. JENSEN: Not on the hundred year --

MR. SINTON: It's not the PMP, which is the probable maximum.

UNIDENTIFIED PERSON: What are those sediments if they're not flood sediments?

MR. SINTON: I'm not exactly sure what the age of those sediments are. Now, they may actually be sediments of the Big Lost River; but today, it is not on the flood plain of the Big Lost River.

And if I need to clarify that with a geologist who can give us more information about the history, the historical geology of the area about where the Big Lost River was, I can do that for you.

UNIDENTIFIED PERSON: Is it not also true that at the time of the Challis earthquake, that the ground --

THE REPORTER: I can't hear him.

MS. GREEN: The court reporter is having difficulty understanding you. Could you come forward a bit, please.

UNIDENTIFIED PERSON: I say, in addition and in response to this, is it not also true that at the time of the Challis earthquake that the ground in the basin above the INEL, the deep water and the waters -- flood waters from that period, which was only ten years ago, were lapping at the doorstep of the RWMC?

MS. GREEN: I --

UNIDENTIFIED PERSON: It's hard to say that's only a 100-year flood plain, if that's what's going on.

MS. GREEN: I am not aware of any flood on or near the INEL in the time frame of the Challis earthquake.

Reuel, are you --

MR. SMITH: I don't know that either.

MS. GREEN: Well, he was stating they were at the RWMC; and I certainly don't know of any at --

UNIDENTIFIED PERSON: At the spreading area just outside of the RWMC, there was evidence that there was water there in the last ten years.

MS. GREEN: That is true. The water was not from -- resulting from the earthquake as much as it was, to my understanding, just releases into the river and wet years, basically.

MR. NYGARD: It was a rapid snow melt.

MR. PIGOTT: I did the bridge inspections, the building inspections --

THE REPORTER: I didn't hear what he said.

MS. GREEN: Here's the microphone.

MR. PIGOTT: I did the bridge inspections and the building inspections the day after the earthquake. The river, at that time, was completely dry because I walked underneath the bridge, and there wasn't any water in the river coming into the INEL.

UNIDENTIFIED PERSON: Yeah, but what happens for the next six months afterwards as the ground -- I mean, there's a road sign up in the Challis River Basin where they talk about that the flow of the groundwater out of those springs and the flow of the river increased -- I don't know if it was ten-fold or something like that -- within the six months after the earthquake.

MR. PIGOTT: That never got down to the INEL.

UNIDENTIFIED PERSON: Well, the water or

something that was in the spreading area then.

MR. PIGOTT: The water -- a lot of that water gets diverted for irrigation. It never even gets to INEL.

UNIDENTIFIED PERSON: Where does the water come from then?

MS. GREEN: Bill -- yeah, I think we need to -- if you could please speak a little bit slower, sir, so that the court reporter could get your question, she'd appreciate it, and we'd appreciate it.

The water that entered the spreading areas in the 1983 time frame -- I believe that's what we're talking about, because that's when I first moved there -- was there through the flow of the Big Lost River and was diverted into the spreading areas.

It was, to my knowledge, never classified as any flood. So, I'm not sure --

UNIDENTIFIED PERSON: Well, my comment is, then, the report here needs to show that -- what the situation of these ponds are in relation to the flood plain of the Big Lost River, and what the situation is in terms of additional surface waters that may or may not encroach upon the INEL in a reasonable amount of time, which it does not show in the report because I have just been reading it.

MS. GREEN: Any other questions, specific questions, about the TRA Perched Water System before we begin the formal comment period?

(No response made.)

MS. GREEN: Okay. If there are no more questions, this is the time when -- time that's been provided for oral comments on the perched water proposed plan.

How to make comments, if you have brought prepared statements here tonight which you'd like to have included in the meeting record and responded to in the responsiveness summary, you may either read them during the verbal comment segment of the meeting or simply give the prepared statement to Reuel Smith, if you have it written down; and he will enter it into the record.

Do we have the tape recorder here tonight, Reuel?

MR. SMITH: Yes

MS. GREEN: There's also a tape recorder at the back of the room. If you would rather not provide your oral comments in front of the audience, you can use that, if you wish.

If you choose not to do so, not to provide oral comments at this meeting, but you still wish to provide comments in writing, the address where to send those written comments is on the back side of the agenda.

In addition, there are comment forms at the back table specifically for the perched water study. You're welcome to fill out a form tonight and either leave it with Reuel or send it to us.

I'll remind you that written and verbal comments are given equal consideration, and the comment period for each of these -- for this project and the other two, also, runs through August 5th, 1992.

What happens to your comments after you've made them? After the comment period has ended, DOE prepares a summary of the oral and written comments received on each of the proposed plans. And then the three agencies, DOE, EPA and the State, get together and evaluate those comments for their -- for addressing the recommendation and then respond to the comments that are relevant to each topic in a document called the responsiveness summary.

That responsiveness summary is then made available -- it's made part of the record of decision for the project, and it's made available to anyone who has signed the attendance register at the back of the room and to anyone who provides written comments along with a return address.

The -- we'd like to provide everybody who wishes to make an oral comment with five minutes to do so to ensure that everyone who would like to has time to do so.

At the start of your comment, would you please state your name and spell your name for the court reporter for the record prior to giving your comment?

Reuel, has anybody signed up to make oral comments?

MR. SMITH: Four people have.

MS. GREEN: Four people have?

MR. SMITH: And possibly more. You might indicate that it wasn't necessary -- it wasn't necessary to sign up at the reception table.

MS. GREEN: Right. If you change your mind and have not -- and would like to make oral comments at the completion of the people who have signed up, there will be an opportunity to do so.

I'd like to ask the court reporter, are we at a place where -- we don't want to have to stop in the middle of somebody's comment to change the tape. How -- how are you as far as that status goes?

THE REPORTER: Can I check the tape?

MS. GREEN: Would you please?

THE REPORTER: I'll just change it now.

MS. GREEN: Okay. We're ready to start the formal oral comment session for the Perched Water at the Test Reactor Area. I guess I'd like to ask for a show of hands for those who plan to provide oral comments.

Anybody who would like to volunteer to go first?

MS. MINEUR: My name is Lynn Mineur, M-I-N-E-U-R. I have comments on the following proposed clean up plans at the INEL: the Perched Water System beneath the Test Reactor Area, submitted by the League of Women Voters of Moscow, June 23rd, 1992.

The League of Women Voters of Moscow is pleased to be able to present these comments in person at a public meeting in Northern Idaho. The League is reassured about our government's recognition of the public's right to the opportunity to participate in the clean up process regardless of whether the public chooses to exercise that right in any given time.

The League continues to request language in the INEL Community Relations Plan that will guarantee that at least one public meeting on each clean up project be held in the northern part of the state.

On the Perched Water System beneath the Test Reactor Area, the League has grave reservations about the proposed decision to allow the contaminated sediments in the deep water perched pond to remain there. #T4-1 P-24

A risk assessment based on mean concentrations of contaminants is in danger of understating the risk. This is of special significance when the decision is to take no action. #T4-2 P-04

The League requests that the risk assessment be repeated based on a model that considers the highest concentration before a no action alternative be found acceptable.

The League requests written identification of the specific operable units under #T4-3 P-27

TM-00301 (3)

which each of the five ponds and basins listed as sources of the shallow water perched system will be evaluated. This information was not provided in the June 26th, 1992 Dear Citizen letter.

The League also requests written assurance that the sediments in the shallow Perched Water System will be included in the RI/FS studies for each of these operable units. #T4-3 P-27

I'd like to point out that those comments were based on that confusion that came from the technical briefing, and it does illustrate the kinds of problems we run into when we meet in a room up here and deal with people over the telephone in Idaho Falls. Having said that, we prefer to have the opportunity to have that kind of technical briefing than to have no opportunity at all.

The League objects to the continued use of the warm waste pond and the cold waste pond in light of the decision to allow the contaminants in the deep perched pond to remain as a source of contamination to the Snake River Aquifer. #T4-4 P-20

The League went on, and all of our comments are in one document; so, I'll submit that at the end, if I may.

TM-00301 (4)
TM-00302 (1)

MS. GREEN: Thank you.

Lynn, can the court reporter be provided a copy of what you read from, so she can verify it?

MS. MINEUR: Yes. I just have the other two that I will read comments on.

MS. GREEN: Okay. Thank you.

MS. McREYNOLDS: My name is Mary McReynolds. I don't have anything written out. I have several concerns about this no action. The first of which is that this particular system -- and it is a system -- starting with the top sediment of the warm waste pond on down to the aquifer that's been divided into four separate operable units. Somehow it's a divide and conquer that doesn't take into account that this is a dynamic system and from one level will go to the next.

And when we're talking about dealing with related systems, we are not talking about dealing with three basically no related no action systems. We're talking about dealing with operable unit ten, with operable unit twelve, with operable unit thirteen and the entire aquifer as one full system. They are all interrelated. What happens to one will affect the other from the top down.

#T4-5
P-27

TM-00301 (5)
TM-00302 (2)

I have problems with continued use of the warm waste pond until 1993, and you're basing a no action where you don't know what's going to happen in 1993, as well as the main driver for the perched fluid system, being the cold water waste pond, which will be an operation which provides 85 percent of the water to the deep zone until the year 2007 and being completely decommissioned in 2017. I find this rather confusing that you would choose to put a no action when the whole system is still in operation. You don't know. #T4-6 P-20

I have problems with the use of mean concentrations as opposed to range concentrations. Again, this may understate the problem. I believe that you should be using the highest concentration level for what you are doing. And I don't know why we were provided with the mean for this particular aquifer unit when you go on to the motor pool, and you give us range as well as giving us range in the Auxiliary Reactor Area. And so -- and I didn't have time to go to the administrative records and look it up, but I believe that those things should be given to us; and I think that it should be based on the high end. #T4-7 P-04

I have problems with the idea of the #T4-8 P-27 contaminants. Somehow it was explained to us that the contaminants that are going to be held in the subsurface level are going to be stabilized there; and that they're going to be okay there until such time as -- that you weren't really planning, it didn't sound like at this time until we brought it up in operable unit thirteen, to deal with these sediments from shallow waste and the deep perched -- or the shallow perched and the deep perched -- that they're going to be held there with, at this point in time, nothing being done with it. Your own research for pit nine on the types of natural plants that grow in the area show that they have root systems that extend down anywhere from ten to twenty feet, which means that they can be brought up.

The research for that project also shows, biologically, there are animals in the area that eat these things. I have real problems with this being left there for that time frame. All of your concepts are based upon a perfect system. You do not take into account floods that I can see, earthquakes -- and this does lie along the fault line -- all of those things that are reality that actually could happen are not being taken into

#T4-8
P-27

#T4-9
P-18

#T4-10
P-03

consideration. Life does not run on a perfect system.

We only know the concentrations for contaminants for the warm waste pond. We don't know them for any of the -- there are more than ten other sites there, not just ones that you listed, that contribute to the perched zone. We don't know the contaminants in those.

Okay. That question was answered. So, my feeling is, at this point, that we're being a little precipitous in trying to put through a no action while, one, the warm waste pond and the cold waste pond are still being used. I don't see how you can base any final decisions or assessments when they're still being used. I don't see how you can separate out the systems.

So, I hope that you'd have -- if you're going to do this, that I would wish that they would be reopened when you do, the whole operable unit thirteen of the systems, you look at as a whole. They're not separate; and that hopefully, the water will be exhumed and the contaminants will be exhumed at that time.

I would like a list of all contaminants made public, not just those that are a concern.

#T4-10
P-03

#T4-11
P-20
P-27

#T4-12
P-17

TM-00302 (5)
TM-00303 (1)

You get a bunch of things that are under one percent, and these can come up to 20 percent real quick. And they have an accumulated risk together. #T4-12 P-17

And as my final statement, I would like, at this time, because all of these things -- not just this particular operable unit, but operable units covering an entire INEL area -- are all contributing to contamination in the Snake River Aquifer. I feel that it is time that we move up WAG 10 to the forefront so that when we're looking at each of these separate things that are contributing to contamination to the aquifer, we can know exactly how much this area is contributing to the overall aquifer. And we can decide, at that time, whether or not that it's true that we should be, indeed, cleaning this up or whether we can leave it safely. #T4-13 P-27

That's all.

MS. GREEN: Okay. Any volunteers for oral comments.

MR. BROSCIOUS: My friends know that sometimes a little comic relief is helpful for me to keep from getting too caught up in things. This is a cartoon that they sent. Thank you, Lynn.

The person that did this has a lot of

TM-00303 (2)

extra time, in the tune of a couple of days, and I'm willing to go into the administrative record and go through the sampling data. You'll find some interesting information, but it's not very readily apparent which is which.

This particular data was -- has been turned into English so you can at least understand it, but this is sampling data underneath the test reactor that --

MR. HOVLAND: I have a question for clarification. When you say groundwater samples, is it shallow perched, deep perched; or is it distinguished there?

MR. BROSCIOUS: The data sheet didn't specify.

MR. HOVLAND: Okay. So, it could be the shallow or the deep perched?

MR. BROSCIOUS: It might be either one.

MR. HOVLAND: Or it -- and would it be the Snake River Plain Aquifer, too?

MR. BROSCIOUS: It could be either of the three.

MR. HOVLAND: Okay.

MR. BROSCIOUS: What's listed on here is the -- the radionuclides, the concentration levels;

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and in this column, is what little information I was able to glean out of the Environmental Protection Agency concerning the current 1976 drinking water limit for contaminants.

The far column here is the number of times over the EPA limits that this concentration level represents. For -- and aside, it would be interesting -- it might be interesting for you to know that the drinking water limit is -- new drinking water standards have been drafted, and the plan is to promulgate these new standards.

The most significant part of it is that the limits are being raised, not lowered. For instance, cobalt-60, which is currently at a hundred picocuries per litter, is being raised to 218 picocuries per liter. For chromium-51, which is currently at 6,000, is being raised to 38,000.

Basically, my interpretation of that is it's related to the Reagan/Bush administration over the past twelve years to raise these limits because the single largest polluter with respect to radionuclides is the federal government. And it's in their interest to raise these limits to minimize the impact on them to clean up many of their sites. And there's a significant conflict of interest with

TM-00303 (4)

the polluters setting the standards.

In 1987, the EPA attempted to promulgate new standards; and they were sued by the Natural Resources Defense Council, and the courts threw those standards out because they were not protected -- they would not protect human health, the standards that the EPA was trying to promulgate. And, hopefully, some public interest group will have the resources to be able to challenge these new standards.

In this column over here, you can see some pretty big numbers: 122,000 over the limit; 105,000 over the limit. In terms of half-lives, many of these have really long half-lives. The cobalt doesn't have such a long one. It's about here. Cesium has 30 years. Americium-241 down here has 432 years for a half-life. And that's only its half-life. That doesn't mean that after 423 years -- or 32 years, that it's not going to be toxic or dangerous. #T4-14 P-07

Strontium-90 down here at the bottom, if you can see it, has a half-life of 28 years. Tritium has 12 years, plutonium-239 has 24,000 years. Europium-152 is 4,700 years. Europium-154 is 5,800 years. And europium-155 is 621 years.

Down at the bottom, if you add these curie concentrations up, you get over 4 million picocuries per liter. This is underneath the Test Reactor Area. This is what they want to walk away from. And this is the information that you're not getting from DOE, from the State or from EPA. You won't find that in any of the mailings or the Dear Citizen letters. #T4-14 P-07

The issue has been brought up about the relative impact of other sites around the INEL that are contributing. And the fact that they're looking in narrowly at only these individual waste areas -- or operable units, not even -- they're not even doing the whole waste area groups. So, I think it's -- it's rather interesting to see here -- this is, again, DOE data in terms of sitewide what's been released. #T4-15 P-27

The solid discharge to the environment 1952 to 1981 solid, this is radioactive waste that's just been buried in underlying ditches. It's not in any kind of a monitored retrievable storage, eight million curies over.

The low-level liquid waste, which "low-level" doesn't mean that it's not risky, it's just a category, fifty-four curies. These are full

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curies. These aren't picocuries. Airborne releases, 52 to 89, over 13 million.

Now, these other categories down here, this is in storage. Solid waste, 74 million; high level liquid waste, this is primarily what's in the high-level liquid waste tanks. That's how much has been generated, 371 million. Calcine, this is what's in the calcine bin, 64 million.

Down at the bottom, is a total of all the radioactive waste that's been generated down there, either in storage or has been disposed, 531 million. And there's a note at the bottom, suggests that it's -- that doesn't include spent fuel that's in storage down there. If it included the spent fuel, it would be many times over that.

MS. GREEN: Excuse me, Chuck. We've gone about eight or nine minutes into the five-minute commentary. Are you about to rap it up? If so, I'll let you finish up. If not, I'd like to ask that you provide the remaining --

MR. BROSCIOUS: I forgot to tell you, my name is Chuck Broscious, B-R-O-S-C-I-O-U-S, executive director for the Environmental Defense Institute. And you, too, can have a copy of our comments.

TM-00303 (7)

MS. GREEN: For purposes of clarification, the first table that you had up there, the list of radionuclides and concentrations, do you have specific reference for that so that we can look --

MR. BROSCIOUS: Right there at the top.

MR. HOVLAND: Is that in your handout?

MR. BROSCIOUS: (Mr. Broscious nods head.)

MS. GREEN: And the second table, for purposes of clarification, does relate to the entire INEL?

MR. BROSCIOUS: Right.

MS. GREEN: Thank you.

MR. BROSCIOUS: The position that the Environmental Defense Institute has taken is that the no action alternative is totally unacceptable; that the -- at this present time, the contamination in either the shallow or the deep perched zones is acceptable. It can be pumped and treated. #T4-16 P-22 P-24

The thing is, is that if that contaminated wastewater is exhumed, pumped back out to the surface and treated, it's not going to migrate and further contaminate the aquifer. The collective total comprehensive contribution to the #T4-17 P-22

TM-00303 (8)
TM-00307 (1)

aquifer is substantial. And any additional contamination that can be remediated and simply can be remediated, must be done. #T4-17 P-22

MS. GREEN: Did we have another person signed up? Yes, ma'am? Would you like to come to the microphone or take the microphone wherever you'd like to --

MS. REGELIN: Actually, I'm two people tonight. The first one I'd like to do is read a statement from two friends of mine who could not be here. And their names are Patricia and Donald Scott, S-C-O-T-T. And I will give you this.

And their statement is, We do not feel that no remedial action is the proper solution for dealing with the contamination in the Perched Water System beneath the Test Reactor Area, the Motor Pool Pond at the Central Facilities Area and the Chemical Evaporation Pond at the Auxiliary Reactor Area. #T4-18 P-24

Dividing INEL into so many waste area groups, and these into operable units, may make it easier to manage the investigations; but this fragmentation does not provide us with a total picture. As in all of the, quote, below-risk factors, end quote, of all of the operable units of #T4-19 P-27

TM-00307 (2)

all of the waste area groups together, might result in a level which should demand remedial action. It seems very important to have a preliminary risk assessment of the whole area in order to come up with valid solutions.

#T4-19
P-27

We wonder about the wisdom of averaging the concentrations of contaminants found in different areas. Using the highest concentrations would change the picture drastically. Revisions in what is considered safe concentrations for these contaminants have always been downward instead of upward, and it makes more sense to err on the conservative side if we cannot be sure just what is safe.

#T4-20
P-04

Finally, what are, quote, safe concentrations, end quote, for all of the populations, flora and fauna, found in the INEL area? We do not believe that the safe concentration level for the harvester ant, for example, is known; yet the conclusion is made that no harm will occur to humans or the environment. Do we even know how many species are in the environment?

#T4-21
P-19

Then for myself, I'm Louise Regelin. I'm a local attorney. I'm a member of League of Women

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Voters, and I'm state president of the Idaho American Association of University Women. And as such, I work with and deal with my branches that are all over the state, including branches in Burley, Rupert, Twin Falls, Pocatello and Idaho Falls. And a number of my people are quite concerned about this, as I am.

First off, I want to say thank you for this opportunity. We do appreciate being able to have our input because many of us do express statewide interest as opposed to, quote, parochial interests. And my comments are really a continuation as were expressed at the last opportunity that we had in Moscow via speaker phone.

And I want to raise those same three issues because I still don't believe they've been adequately addressed. One of them has already been raised; and that is the fact that, for a lot of us, we find that a decision for no action is not an acceptable solution. #T4-22 P-24

My first point that I raised, again, earlier -- and I want to raise again because I feel it has not been addressed -- is what options were considered? We've never been made privy to that #T4-23 P-21

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information. What did they cost? Why were they rejected? And are those all the options?

I remember reading a book called The Third Alternative, and that is that we need to continually seek to find new and innovative solutions. Why were the options that were chosen, chosen? And in this case, the option of no action is, I believe, not well supported. Why were other solutions rejected? I don't believe that information has been provided. And what factor and/or element was regarded as the decisive factor?

#T4-23
P-21

The second one is what is the role of this partial solution as a -- or choice, whichever you want to call it -- in this total picture? What is the cumulative effect or result of the fact of, in effect, no action being taken? And I think a number of other speakers have addressed that issue very well. And that delaying is not going to improve the situation.

We need progress. Costs will only increase, if we want to look at the picture of dollars. We are going to have to clean these things up. The problems will more likely be exacerbated, as an example, the perched water table situation. The water will continue, through

#T4-24
P-24
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TM-00308 (3)

gravity and various other things, to migrate further from the surface; and the risk levels will rise. And, of course, the cost. #T4-24 P-24 P-27

The third one is why do we, as citizens, not have the right to be involved and informed at all levels during these procedures? Because we can like it or not, but we're all part of the Snake River system, which is part of the Columbia River system. And, indeed, that aquifer that we're talking about down there, whether we're talking about the Lost River or the Snake River, are part of the same system.

And I think as anyone one who works, as I frequently do, with future development water in this part of the world and probably in the entire world, will be the critical element that will determine whether there will be development or no development.

So, a cure, if you want to call it that, or a complete solution can be effected in the near future, meaning before the turn of the century. If we wait longer than that, I'm not at all convinced that a solution can be achieved. Remediated action, possibly, but nothing that would be a, quote, solution.

TM-00308 (4)

I appreciate the fact that we are making progress. I think having real bodies here this time is a step in the right direction. However, I'm afraid we're not making progress fast enough, particularly in the efforts to take remediation.

We do need information, and Mr. Brosclous has just given us some specificity. And while I know that numbers can be made to jump through hoops, I do think cumulative effects are something that have not been adequately addressed. So, I would ask that the powers that be act now to make proactive decisions rather than no active decisions and to make those decisions keeping the benefit of both the people of the area, not just Idaho, but the whole Pacific Northwest and country and our environment in mind. And the decisions that have been proposed in these three situations, I don't feel do that.

#T4-25
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#T4-26
P-24

Thank you.

MS. GREEN: Are there any others wishing to make oral comments tonight on the Perched Water System?

(No response made.)

MS. GREEN: Okay. With that, I'd like to remind you that if you do have additional comments you'd like to make before the close of the comment period on this, that you may provide additional written comments until the close of that period, August 5th, 1992.

And if we could take approximately a 15-minute break between the two portions of the meeting; and when we resume, we will discuss the CFA Motor Pool Pond and the ARA Chemical Evaporation Pond.

UNIDENTIFIED PERSON: Could that just be a 10-minute break because there's a lot of us that want to go home, too.

MS. GREEN: I'll second a ten-minute break.

UNIDENTIFIED PERSON: Ten minutes.

(Whereupon, the proceedings were in recess from 8:30 p.m. to 8:45 p.m., and the following proceedings were had and entered of record.)

MS. GREEN: Reuel, I believe you have an introduction to make.

MR. SMITH: Yes. I'd like to introduce Betty Benson, local legislator from the Moscow area. Is it a floaterial district or....

MS. BENSON: No. It's just District 5.

MR. SMITH: And I just appreciate you being here and wanted to recognize that.

MS. GREEN: Okay. From here on out, we'll be talking about the Motor Pool Pond and Chemical Evaporation Pond proposed plans. And, as I mentioned before, we combined these because they're similar. They're both relatively small sites. They're both pond sediments from inactive ponds. They're no longer in use. A similar approach was used in evaluating them. And in each of them, we have arrived with the same proposal of no action.

I'd like to reintroduce respective managers of these sites for EPA and the State. On my immediate left is Tom Stoops, who is the project manager for the Chemical Evaporation Pond.

At your far left, is Dave Frederick, who is the State's project manager for the Motor Pool Pond. And at your far right is Linda Meyer, who is, again, representing EPA on all three plans here tonight.

With that, Nolan, I guess I'll turn things back over to you to present the Motor Pool Pond. Nolan is also the project manager for DOE for this project, also.

MR. JENSEN: Okay. I've got it. Okay. These two presentations will go a little more quickly. This one is the operable unit four dash eleven. As you can see, it's the Motor Pool Pond at the Central Facilities Area.

And what this focuses specifically on, as shown at the bottom of the slide here, is evaluating the sediments in the ponds, the contamination in the sediments.

Okay. This -- could you maybe -- let's show another photograph of the pond first.

MR. SMITH: Okay.

MR. JENSEN: It's the third one down there. Just to remind you what the pond looks like -- that was a bad idea. Forget it.

MR. SMITH: Here it is.

MR. JENSEN: Sorry, Reuel. Okay. This is a photograph of the Motor Pool Pond or what used to be the pond. It's about that area right there. And this little sign right here, just in case you're interested, all of the sites that will be looked at under the agreement, the federal facility agreement, have these little signs out there to mark them. And that's what that little sign is.

Okay. What is the story behind the Motor

Pool Pond? This is the service station at the Central Facilities Area. It's bigger than the one you have downtown here; but essentially, it does a lot of the same things. This is for the fleet vehicles and the equipment that are used out at the site. And they do maintenance, oil changes, that sort of thing, at the service station.

This is a photograph of one of the bays inside of the service station. What happens is, as the operations go on in here, some of the liquids, like grease or oil, come off of the vehicles and go into these grates here and go into a sump or a vault underneath.

This next photograph is a wash bay on the outside of the service station, and vehicles are washed here. And the wash water goes into this grate and, again, into a sump. After it goes into the sump, there is a pipe connected to it. And it comes -- this is the service station back here. The water comes through a pipe. This is approximately east that the pipe would come from the station. It outflows at the back of this ditch, runs along the ditch and then into the Motor Pool Pond.

And, again, I spoke in present terms; but that operation hasn't been going on since 1985. The pond hasn't had any discharge since 1985.

MR. BROSCIOUS: Excuse me. If I were to take your characterization of that, it would be just like the Conoco station a half a block away up here that just simply does routine maintenance and that sort of thing, which is simply not the case.

That particular facility has been used to decontaminate vehicles, as I pointed out in the briefing. And, also, as cited here, it's been standard operating practice to minimize the spread of contamination from the site. Obviously, vehicles pick contamination up as they travel around the site. There's contamination that ends on the top -- or wherever on the vehicles, in addition to other vehicles that stay on the site.

And it has been used for decontamination. Otherwise, you wouldn't have ended up with radionuclides in the pond. And I really object to your characterization that it's just some ordinary shop that just simply washes vehicles, because it's not just an ordinary shop that washes vehicles. It's a decontamination place. Maybe not a high level decontamination -- I'm not saying it's a hot spot, but please be candid.

MR. JENSEN: I was being candid.

Bill, is it used for decontamination or just washing?

MR. PIGOTT: They pressure wash the vehicles before they take them in.

MR. JENSEN: Right.

MS. GREEN: I think if I can -- I think Chuck is saying de facto decontamination. I mean, it may not be intended to be high-level decontamination; but, in fact, just due to the presence of some of the radioactive contamination in the pond, we know that it must have washed off some contamination.

Is that a fair representation, Chuck?

MR. JENSEN: And, again, in no way do I mean to minimize that. But I'm just trying to explain the operations, and they are normal maintenance operations. That's what it's there for. However, as you will see, it did cause contamination.

UNIDENTIFIED PERSON: And it hasn't been in operation since '86?

MR. JENSEN: It was taken out of operation in '85, the pond was. The service station is still there.

UNIDENTIFIED PERSON: Thank you.

MR. JENSEN: Okay. What was done to find out what was there, in 1989, fifty-one samples were collected at the -- at the Motor Pool Pond. Samples were collected at various depths from zero to fifteen feet.

And the next slide, we'll show you the contaminants that, in the risk assessment, were found to be of greatest concern. And especially the ones that are highlighted here were of particular concern.

Okay. What was, as far as exposure -- yes?

MS. MINEUR: Could you go back to that slide?

MR. JENSEN: Yes.

MS. MINEUR: Can you tell me --

THE REPORTER: I can't hear her.

MS. GREEN: Lynn, you need to speak up.

MS. MINEUR: Can you tell me what portion of the risk the highlighted contaminants were?

MR. JENSEN: Go ahead, Dave.

MR. FREDERICK: Sure I can.

MR. JENSEN: Dave's got that right off

the top of his head.

MR. FREDERICK: For the carcinogenic risk, there is -- 46 percent of it is for -- from the PCB. The beryllium is 15 percent; barium-137M, which is a decay product of cesium-137, contributes about 20 percent of the risk. And the plutonium-239 contributed 2 percent.

MS. MINEUR: What was PCB? Did you say 45 percent?

MR. FREDERICK: 46 percent.

MS. MINEUR: Thank you.

MR. BROSCIOUS: And there was no cobalt-60 in there?

MR. JENSEN: I don't remember if it was detected or not.

MR. STANISICH: No, not detected. That's indicative of the fact cobalt-60 was not detected in that pond. And that would indicate that the contaminants were -- that the contaminants were introduced to the pond some time ago because cobalt-60 and cesium-134 are gamma-emitting radionuclides with short half-lives.

MR. JENSEN: This is Nick Stanisich, by the way. He did some of the work on this project, a lot of the work on this project. And Mike Spry sitting next to him did a lot of work on this project.

MR. BROSCIOUS: Excuse me, but the administrative record does mention cobalt-60. It also mentions potassium-40, lead-212, radium-226 and radium-226. I'm sorry, lead-212, radium-226.

MR. JENSEN: Are you looking -- are you sure you're not looking at ARA, the next one? I don't know. We'll check.

MR. BROSCIOUS: Central facility.

UNIDENTIFIED PERSON: I'm sure that cobalt-60 was not detected. Potassium-40 may have been detected, but it's a natural occurring radionuclide. So, if it was detected, it certainly wasn't due to any contribution from wastewater from the CFA Motor Pool Pond.

MR. JENSEN: Okay. Let's -- let's look at now the exposure roots that were evaluated for the Motor Pool Pond. First of all, there were -- there were both occupational exposures evaluated. And, again, similar to the Perched Water System, it was evaluated what would happen if someone moved out there and lived there in the future.

In both cases what was evaluated were the impacts of breathing sediments, contact with the skin or dermal absorption, ingestion of the soil and the contaminant and then exposure to the radiation, direct exposure.

So, now going directly to the results of those calculations, as you can see here, for the occupational scenario, which is -- right now there are about 1200 people employed at CPA. And this -- this is just to, again, point out the fact that it is -- INEL is a restricted access area. And the occupational scenario was the one that was evaluated for the current period for today.

And, as you can see, for carcinogenic risk -- this is carcinogenic risks -- the calculations came out to one in one million incidents.

UNIDENTIFIED PERSON: Excuse me, in your table, you've got four in a million. Table two in the Dear Citizen letter, page B-6, total worker risk, site-specific, four in a million.

MR. JENSEN: Okay. That's the difference between -- that's the difference between the default and the site-specific; is that right?

UNIDENTIFIED PERSON: No. That is site-specific. Default is four in 10,000.

MR. JENSEN: Which one? Do we have a typo? Okay. We may have a typo. We may have a mistake in our proposed plan. This is out of the RI report?

UNIDENTIFIED PERSON: Yeah. That is not what we have.

MR. JENSEN: Okay. That may be a mistake.

UNIDENTIFIED PERSON: Definitely is a mistake.

MR. JENSEN: Okay. We've got an error.

UNIDENTIFIED PERSON: That whole column on carcinogenic risk A doesn't match what we have. Just for the radionuclide chemicals and the occupational --

UNIDENTIFIED PERSON: These are the right numbers.

MS. REGELIN: Where did these numbers come from?

MR. JENSEN: Obviously, there was a mistake in communications or a typographical error or something. The numbers for that should have come from the remedial investigation report. We can show you the remedial investigation report where those were summarized, and it matches up with this table.

MS. GREEN: Nolan, what are the differences between what's in the plan and what's up there?

MS. REGELIN: A lot.

MR. JENSEN: Yeah. There are a few.

Let's see, the first one -- yep. This is it. Okay. The first one is -- let me go to the screen here. The first one is in the plan. This is three instead six in the plan. That one is the same.

UNIDENTIFIED PERSON: And look at the ratio, please.

UNIDENTIFIED PERSON: Three in ten thousand instead of six in a hundred thousand.

MR. JENSEN: So, we put a number that was too high in the proposed plan for the default value.

MS. GREEN: Right. The numbers that are in the proposed plan consistently -- show consistently greater risk than what is really in the remedial investigation report. And these are the correct numbers.

UNIDENTIFIED PERSON: How do we know that?

MS. REGELIN: This is your official publication to the public saying these are the numbers.

MS. GREEN: I guess they -- what also needs to be identified is the numbers that are in this plan would not -- they're still within the acceptable risk range essentially. That would not change the proposal.

UNIDENTIFIED PERSON: Actually, they're not because the acceptable risk range was one in ten thousand to one in one million. And what we have here is four in ten thousand to four in a million. So, they really aren't in an acceptable range.

MR. BROSCIOUS: They're not the right numbers.

UNIDENTIFIED PERSON: I know they're not the right numbers but --

UNIDENTIFIED PERSON: We didn't know that.

UNIDENTIFIED PERSON: Yeah. And nobody said any different than when we went through with -- because I believe when we look at the technical briefing --

MR. JENSEN: I think in the proposed

plan -- let's see, those are still all within -- in both cases, all within the -- within the range.

MS. GREEN: The four in ten thousand is the default. And the site-specific is well within the range. And that's what the actual risk management decision would be based on.

UNIDENTIFIED PERSON: But my point is this: For instance, as an example, the first heading under site-specific, in your printed materials, it says three in one billion. Up there it says seven in ten million. You have to understand my suspicion as to -- are you lying here? Or are you lying there? Or are both of them wrong?

MR. JENSEN: The proposed plan was supposed to come from the RI report; and Dave picked up one mistake, and we corrected that one. I thought we checked it several times. So, these are the correct numbers. And these are the ones in the report, correct?

MR. STANISICH: These are the ones in the report. I'll show them to you, if you'd like. These are the numbers we calculated. They're the same as those numbers. And it's not a matter of someone lying to someone else. It's a matter of a typographical error or a mistake in miscommunications. If you'd like to see these, I'd be glad to show them to you.

Would you like copies of this?

UNIDENTIFIED PERSON: It would be nice.

MS. GREEN: Do we have a Xerox here that we can go have copies made for everyone?

MR. SMITH: Do you want to talk to that any longer?

MR. JENSEN: Not unless there are questions.

MR. BROSCIOUS: In terms of your contaminants of concern in rating the Oak Ridge survey sampling, which found organics that are not listed on your contaminants of concern, which included the 2-butanone at levels of 190 micrograms per kilograms -- or whatever "ug" stands for. Trichloroethane at 25 ug; toluene, which also isn't listed, at 32 ug per kilogram; methylene chloride, which isn't listed, at 460 ug per kilogram; acetone at 85 ug per kilogram; tetrachloroethylene at 76 ug; 4-methyl 2-pentanone at greater than 8,300 ug per kilogram. At least nine of these organic contaminants exceed EPA CRQL criteria and are not listed here.

MS. GREEN: I think Nick can respond to that question.

MR. JENSEN: Go ahead, Nick.

MR. STANISICH: Okay. The organic contaminants that you're referring to, the environmental survey did -- in approximately 1987 or '88 -- I can't recall which year -- several of those contaminants that you listed were detected in the pond from our sampling also. But during the concentration toxicity screening process, they were eliminated because they don't -- they didn't add any additional risk. They were at such low concentrations.

Other things like 2-butanone are commonly found in all soil samples and are generally disregarded. The concentrations are -- are quite low, and they were all in the micrograms per kilogram range, which is parts per billion.

It's not that we didn't disregard these chemicals, nor did we know they existed. One, our sampling didn't confirm some of their results. And in those instances where our sampling did confirm their detections, it turns out that they were at such low concentrations that they didn't add any additional risk or any significant risk; and therefore, they weren't added into the risk assessment.

MS. MEYER: Chuck, you were referring to the CRQL, and those are quantitation limits. So, it's a method, when you analyze a sample, that's the maximum level at which you can quantitatively state it's actually there.

MR. STOOPS: It's part of what's required by EPA protocol. Your lab has to be able to detect to that level

MS. MEYER: It's a testing method.

MR. STANISICH: It's not a level that is a contaminant clean-up level or anything like that.

MR. BROSCIOUS: I'm not suggesting it is. But significant amounts of it were detected, you know. I don't know when the Oak Ridge thing was --

MR. STANISICH: '87 or '88.

MR. BROSCIOUS: It's not that old.

MR. STANISICH: No, it isn't that old. And, like I'm saying, their sampling was designed to take a quick look at the CFA Motor Pool Pond sediments. I believe they took probably three or four samples in three locations. Whereas, we did a much more extensive investigation at 51 locations. We must have taken -- I don't know -- 160 samples, something like that. That's just a guess, but quite a few.

It's like I stated earlier, our sampling validated some of those detections; and we agree that there's methylene chloride and toluene in the pond, but they were at low enough concentrations that they don't add significant risk. Some of the others that you described, we didn't detect. Although, we sampled for those compound levels.

MS. MINEUR: Can you go back to the slide that --

MR. JENSEN: Do you want to give her the mike?

MS. MINEUR: The question that I asked earlier, and I'm just trying to make sure I understood what you said, was the PCB and the beryllium together constituted 61 percent. And in the technical briefing, we were dealing with much higher numbers. We were talking about concentrations that were driving the risk assessments to like 80, 95 percent.

I don't understand, if those two together are just 65 percent, it seems to me that 40 percent or 35 percent of other elements is a significant amount; and the same on the radionuclides. With the Barium and Plutonium, if I wrote down the right numbers, they only constitute 22 percent. So, either I'm not understanding how this process works; or I did write down the wrong numbers.

MR. FREDERICK: Okay. Can you hear me all right? Everybody hear me okay? The two are summed, for starters. What I -- the numbers I gave you were to address total carcinogenic risk. So, if you had 61 percent from the chemicals and 22 percent from the radionuclides, that would leave you with 83 percent. And going over the list here, it appears that one more radionuclide should be highlighted. That would be americium-241, which constitutes 15 percent of the risk.

MS. MINEUR: So, americium, alone, is 15 percent?

MR. FREDERICK: 15 percent, correct.

MS. MINEUR: Thanks. That makes sense.

MR. FREDERICK: Does that clarify your question all right?

MS. MINEUR: Yes. Thank you.

MR. FREDERICK: Good.

MR. JENSEN: Okay. Now, do we have our

slides?

Okay. Now, do these match the proposed plan? Again, this is for future residential. It was looked at in 30 years from today and at 100 years from today. And is this the 100-year number? I'm trying to remember now. Is this the 100-year number?

MR. STANISICH: 100 years, yes.

MR. JENSEN: Okay. And that's the -- that's the carcinogenic risk. This is the noncarcinogenic risk number, and it's point seven, which is less than the hazard index of one. So, again, quickly, as you know, we're recommending that no action be taken on this site either.

Okay. Any questions before we move on to the next one?

MS. GREEN: The way the agenda is set up is that unless there are specific questions of clarification on this presentation, we'd like to move on to the motor -- or to the Chemical Evaporation Pond and then deal with general questions on both of those before we go into the public comment session.

MS. REGELIN: Point of information. We discussed or was presented to us that this drainage used this ditch. Was any -- and we mentioned there was 51, I believe, test sites. Was any testing done in the ditch?

MR. JENSEN: Yes. Do you remember how many?

MR. STANISICH: Yes, at several locations

MS. REGELIN: In the bottom, I hope.

MR. STANISICH: I hope so, too. No, I know for a fact.

MR. FREDERICK: I might like to point out to further address your question, there's sediments piled along the ditch that were apparently excavated from the ditch to improve the flow of water. And they were sampled as well.

UNIDENTIFIED PERSON: Do you have another one of those nice little charts that shows where all the samples were taken?

UNIDENTIFIED PERSON: I think there are diagrams in the RI.

MR. JENSEN: Pull that out of there.

MR. FREDERICK: There's a map.

UNIDENTIFIED PERSON: And just one question. These guys are -- all of these contaminants are also tested against background; is that correct?

MR. STANISICH: Not all.

UNIDENTIFIED PERSON: Not all? Well, certain things like the man-made products they didn't test against background; but the ones that are natural occurring, you test against background as well?

MR. STANISICH: We compare against background to offer perspective. We don't eliminate any compounds in the risk assessment based on comparison to background, but to offer perspective.

UNIDENTIFIED PERSON: Okay.

MR. STANISICH: For the CFA Motor Pool Pond, we didn't subtract background for any of the contaminants.

MR. JENSEN: Are you done?

MR. STANISICH: Yes. We didn't subtract background for any of the contaminants, but we did go into a lengthy discussion of background and how these numbers compare to background.

UNIDENTIFIED PERSON: Okay.

MS. REGELIN: It doesn't make any difference.

UNIDENTIFIED PERSON: You're going to

have to bring it over here

MR. JENSEN: This is a foldout in the RI report that you can see in the administrative record. It's in the back

MR. STANISICH: This is where the pipe comes in. The outlet is right here. This is the ditch, and these are the samples taken in the pond. These are samples taken in the ditch. Now, it doesn't look like there were a lot of samples in the ditch; but what we did is we took composite samples. Took samples about every ten or twenty meters, I'm not sure, and composited them and then sampled that volume.. Got representation of the entire ditch.

UNIDENTIFIED PERSON: The entire length of the ditch is what?

MR. STANISICH: I want to say 550 feet, but I'm not sure.

MS. REGELIN: My question is, Were there 51 samples and 51 sites?

MR. STANISICH: Sample locations.

MS. REGELIN: There ain't that many red dots.

MR. STANISICH: Well, what you see here is the numbers that are stacked vertically, there were samples taken at depth -- different depths. And that's what you're seeing here. And then there are replicate samples in here as well.

UNIDENTIFIED PERSON: What are all these down here at the bottom?

MR. STANISICH: Those are the backgrounds. That's where we took the background samples.

UNIDENTIFIED PERSON: What's separating this ditch? What's all of this topographical down to here?

MR. STANISICH: What we've got here, this is an old gravel pit that was used probably to construct this road. These are a couple of stock piles of some -- of gravel or topsoil, perhaps; and this is an undisturbed area back here.

UNIDENTIFIED PERSON: Is that a roadway that's going past there?

MR. STANISICH: Yeah, I believe so.

UNIDENTIFIED PERSON: Where's the gravel from?

MR. STANISICH: These piles?

UNIDENTIFIED PERSON: Yeah.

MR. STANISICH: Well, actually -- no, I'm looking at that wrong. Those are depressions.

Those are where they excavated addition -- I'm sorry, yes, they're additional barrow pits.

Okay. Anything else on this?

MR. BROSCIOUS: Could you tell me what the comparable toxicity between 4-methyl 2-pentanone is in comparison to the other chemicals that you found?

MR. JENSEN: No.

MR. BROSCIOUS: Okay.

MR. JENSEN: 4-methyl --

MR. BROSCIOUS: Because -- I'm sorry, I'm still going back to Oak Ridge. But they found 8,300 micrograms per kilogram as opposed to the PCB's, which were at 1,407 micrograms. I'm just curious of what the toxicity would be.

MR. STANISICH: We have a slide with that on it. What you have to look at is -- we have a slide that I'll show you now. But what you have to look at in comparison is not only the toxicity, but the concentrations too. The amount there plus the concentration adds up. So, there's two things involved in that.

MR. BROSCIOUS: That's what I'm suggesting, because there's eight times the concentration of the 4-methyl.

MR. STANISICH: Okay. As you can see in the screening process, we did look at 4-methyl 2-pentanone -- now, what did you want it compared to? PCBs, aroclor-1260; is that correct?

MS. REGELIN: I thought it was the --

MR. STANISICH: Tetrachloroethlene or trichloroethane?

MS. REGELIN: That was the butanone or whatever it is.

MR. STANISICH: The concentration, the maximum soil concentrations are in this column, the milligrams per kilogram that we detected, not enough from Oak Ridge's detections.

MR. BROSCIOUS: I can't imagine that high of a concentration would just sort of disappear and does for years.

MR. STANISICH: As you can see, when the -- when the reference dose, the measure of toxicity, is multiplied by the concentration, then we come up with a number here. All those numbers are added up to normalize. And then each one, a percentage of contribution is listed in this column. Not a percentage, but the ratio. And then the percentage is listed in this column.

So, we can see when the toxicity is

multiplied by the concentration, these are the values you get. And most of them did not contribute significantly. They were all less than -- well, actually they're all -- really, these are -- and I agree with you, you read about these things in the papers. People talk about them in terms of, Oh, they're toxic substances or carcinogenic substances; but in the respective concentration and toxicity compared to the other contaminants, they turned out not to be.

MS. GREEN: For this specific site.

MR. STANISICH: Yeah, for this specific site, they turned out not to be important. For other sites, they may be important when they're compared to other contaminants.

MS. GREEN: If there are no other specific questions on the CFA Motor Pool Pond presentation, we'll go to the presentation on the Chemical Evaporation Pond. Before we do that, I'd like to now introduce Randy Bargelt. Randy is the project manager for EG & G Idaho on this project, and he will give a brief presentation on the Chemical Evaporation Pond.

And then I'd like to remind you, again, that after he's completed his presentation, there will be another opportunity for general questions and answers on both of these two -- last two plans. And then we'll go into the formal public comment session on both the Chemical Evaporation Pond and the Motor Pool Pond.

Randy?

MR. BARGELT: Thank you, Lisa. As Lisa said, I'll present the presentation for operable unit 5-10, which is Chemical Evaporation Pond, waste area group five, which includes the Power Burst Facility area, which we talked about four months ago and the Auxiliary Reactor Area.

And similar to the Motor Pool Pond, we are talking, again, about just the sediments and the risks those pose to human health and the environment.

Okay. This is the Auxiliary Reactor Area-I facility here, and the -- the Auxiliary Reactor Area is composed of four facilities. And all those facilities around here are shut down and not being used any more and are scheduled for what we call D and D, which is decontamination and decommissioning.

Right here is the -- this is the outer

limit of the Chemical Evaporation Pond. And you can see right here, there's an area that's wet. And this picture was taken when the pond was -- was used. And the pond was used from 1971 to 1988. And wastewater was discharged from this building here through a discharge pipe to the pond.

And if you notice the green area right here, you can tell there is some vegetation that has started to grow because it's been wet there for quite a period of time.

This is a schematic diagram of the picture you just saw. And housed in this building during that time, again, from 1971 to 1988, was a print shop, a radiological lab and a materials testing lab. And wastewater was discharged about -- about 300 feet through a pipe to the Chemical Evaporation Pond. And the area here, if you notice by the star, was the area of highest concentration, which is basically the same area you saw where the vegetation was in the previous picture. That was about 100 square feet.

This is a picture that was taken about two weeks ago. And you'll notice vegetation is now dying off. And that area where the star was is this area here. And also, an area of higher concentration within that was right in this area where the discharge pipe discharged to the pond.

A picture of the pond again, which is right in here, stressed vegetation and the building that housed the lab and the print shop. And this looks very similar to the previous presentation. During the last characterization in '90, we took 160 samples, and those samples were taken from the surface to the top of the basalt. And then the maximum depth to the top of the basalt with the alluvium, was four feet. It averaged about two feet. So, the sediments are very thin in this area. And we did determine the nature and extent of the contamination within that 100 square foot area.

Similar slide; different contaminants. The contaminants we were concerned with were called out in the toxicity screening. And these are the contaminants of concern or the risk drivers, essentially, for the risk assessment on this project.

UNIDENTIFIED PERSON: Just so we can see if we've got similar numbers because our numbers have been different between the technical briefing and these, what I have down under carcinogenic risk is for cesium-134 and 137 to be 35 percent of the occupational risk.

MR. BARGELT: We prepared some pie charts after the briefing we had with you to show you this.

MR. STANISICH: For the -- for the occupational risk -- and this relates specifically to direct exposure. Now, this talks about direct exposure from radionuclides to a person who may enter the pond. And, as you see, I'm not so sure about what the numbers you got over the phone were. But cobalt-60 is a big contributor. Cesium-134 is a big contributor, and barium-137 or cesium-137 is also another big contributor from direct exposure. At this point in the pond, direct radiation is the overriding risk driver. It far outweighs all the others.

MR. BARGELT: Does that answer your question?

MR. STANISICH: And that's just for the occupational scenario as it exists now.

UNIDENTIFIED PERSON: Okay. What about, then, the residential --

THE REPORTER: I can't hear her. I didn't hear her question.

MS. GREEN: Could you repeat the question, please, for the court reporter?

UNIDENTIFIED PERSON: Oh, yeah. I just wanted to know, we received some numbers during the technical briefing about the contaminants of concern and what percentage points they were. And some of them related to occupational safety; some to residential. And I wanted him to confirm these numbers just because we've had differences in numbers between the two.

MR. STANISICH: Okay. The period of time is shown there, thirty years. And this is -- we have -- we did two scenarios. Site specific and a default that you're well aware of from looking at that. And you can see the breakdown. And what has happened since -- from times zero to thirty years is that short-lived radionuclides have disappeared, and the longer-lived radionuclides have started to increase in their contribution to risk.

Barium-137 has a longer half-life than cobalt-60. And you see it's increased to 40 percent. Plutonium-239 has increased 26 percent; uranium-234 to 13 percent. This is a fairly long-lived gamma-emitting radionuclide. This is a long-lived alpha-emitting radionuclide.

And uranium-234, interestingly enough, is a natural-occurring radionuclide. But since it was in -- in a ratio to uranium-238 that would seem to be above what's normal, we included it in the risk assessment anyway; took a very cautious approach. And as you see, the inorganic chemicals arsenic, chromium and others, contribute about 17 percent of the risk total.

So, thirty year, it's -- barium-137 is really pushing things along.

UNIDENTIFIED PERSON: Thank you.

MR. STANISICH: Default is not much different. I don't know if you want to spend too much time on that.

UNIDENTIFIED PERSON: Not really. And these numbers are different than what we got before. So, thank you.

MR. STANISICH: Telephone communications are -- do you want to look at the hundred years, or do you want to....

UNIDENTIFIED PERSON: You might just throw it up there. I would like to look at it just to -- I don't know if I'm going to jot down the numbers, but I'll take a look.

MR. STANISICH: Okay. So, what happens

here, the longer-lived radionuclides even start to show up as being more important. plutonium-239 and uranium-234 start to show up as being more important just as you might expect, because they're still there where the short-lived radionuclides are gone. But all this time, the risk is decreasing also, too. So, this is like the plutonium-239 and uranium-234 is about, what, 45 percent of the risk. But the risk is less; so, it's 45 percent of something that's less.

MR. BARGELT: Risk at this point in time is one in a million, whereas at thirty years, it's two risks in a million, cancer cases, excuse me.

MR. BROSCIOUS: It only takes a plutonium particle the size of a grain of pollen to get in and cause cancer. If you happen to be there and be digging around in that spot at some future time, whenever, within the next 24,000 years, that will be your death warrant.

MR. STANISICH: I'd take exception to that statement. A particle of plutonium, of pure plutonium, is undefined. A piece of pollen is also undefined. If you could say how many microcuries or millicurries or whatever, then we could address it. But on those terms, we really can't. A particle is, like I say, undefined. It really doesn't mean anything. And I think that is really overstating the true facts because --

MS. GREEN: Nick --

MR. STANISICH: -- we use standard EPA and NCRP data to calculate these. These are standards used in the nation around the world by --

UNIDENTIFIED PERSON: I guess --

MR. STANISICH: -- scientists recognized -- recognized scientists in the field of toxicology.

UNIDENTIFIED PERSON: I guess what you'll have to recognize, then, is we're the people who have watched the people die and are still watching them die from your little particles. We have watched cancer deaths from radionuclides; and I guess we come at it from a little different perspective than saying, for us, one in a million wasn't good enough.

MR. STANISICH: And I can't -- I'm not an epidemiologist, and I can't address which studies you're referring to about deaths from cancer from radionuclides.

UNIDENTIFIED PERSON: I'm using your own statistics here. And I'm talking about what we have seen; what has been directly attributable. And when you get down to that level, it doesn't matter whether you're telling us it's one part in a million or four parts in 10,000 million. We know what that little particle did, that wasn't supposed to do anything.

MR. STANISICH: I guess we're not saying it didn't do anything. We are saying cancer -- incidents of cancer, not deaths. We're not talking with immortality. If a million people were exposed to this small area at ARA, they would have to be exposed -- a million people would have to be exposed. And then there would be a chance of one excess cancer incident in a million.

UNIDENTIFIED PERSON: Isn't it amazing that there's so many people sitting in this room, then, that have seen it?

MR. BROSCIOUS: DOE's own studies on beagle dogs determine that a particle -- I'm sorry, that's the term they used -- a particle the size of a grain of pollen that was administered to these dogs, every one of them died, 100-percent death.

MR. STANISICH: I can't -- I can't address that. I have no knowledge of that study. I know they did a lot of studies with -- with beagles and plutonium, but I'm not familiar with that.

MS. GREEN: Nick, I think all we can say is that we calculated the risk based on established EPA guidance using established procedures and using the values that national and international toxicologists and radio -- radio chemists have -- have published for that use.

MR. STOOPS: One last point to make is that the ten-to-the-minus-four to ten-to-the-minus-six excess incidents of cancer range is published in the NCP, which is the National Contingency Plan, which I believe was revised in 1990. And that was submitted to the public for comment. And it sets it out there for approximately a year before that aspect of the rule was promulgated.

MS. GREEN: Randy, do you want to continue with your presentation?

MR. BARGELT: You've seen this slide before. We took a look at the various exposure pathways, which are inhalation, direct exposure to ionizing radiation -- which Nick did say was the one that we were most concerned about -- pleural ingestion and skin contact.

As I mentioned before, it has been closed down. So, the amount of people that were exposed to this on a daily basis are very few. They are people from the Environmental Waste Relations Department and the people that are decommissioning the buildings that are likely to -- so, the calculated risk here were two excess cancer cases in 10 million. And that's currently today.

MR. BROSCIOUS: Do you want a citation on that? The title of the report is Inhalation of plutonium Oxide in Dogs, Pacific Northwest Bell, Annual report, 1985. They all died.

MR. BARGELT: Future residential scenario at 100 years. Notice the ARA facility has been removed. The Chemical Evaporation Pond is pretty much gone. And the excess cancer risk was one in 10 million at 100 years.

Another familiar slide showing you both at 100 years and 30 years. The risks were within the accepted range as put out by EPA. And for the noncarcinogenic effects, it was .09, which is about ten times less than what we expect to see the adverse health effects on.

And, again, we recommend no action on this because there is no unacceptable risk from this pond.

MS. GREEN: With that, I -- if we could have any specific questions of clarification that haven't already been asked on Randy's presentation, and then after that, we'll open it up to just general questions and answers on either the Chem Pond or the Motor Pool Pond. And when there are no longer any questions to answer, we'll begin receiving formal public comment on both of these two plans.

Do we have any -- any questions on either the Motor Pool Pond or the Chemical Evaporation Pond that haven't already been addressed?

Yes, ma'am?

MS. BENSEN: I have a question, and it's probably the dumbest question anybody could ask. Tell me what perched water means. I don't know that term.

MR. JENSEN: That was the previous discussion we had before you came. I'll do it really quick, okay? And then I'll talk to you afterwards, if you'd like.

Okay. Perched water is just -- it's water -- what happened at TRA was water went into several ponds. As it percolates through the subsurface, it encounters layers that are less permeable than the ones it's going through; and so, it slows it down. And when it hits those layers, it causes it to mound up or perch. So, it's perched water.

And there are two of them. There's a shallow one at about 50 feet and then a larger one at 150 feet.

MS. BENSEN: Can I ask another question on that? Are there layers of water in there in the meantime -- I mean, of normal natural occurring water where this perched water is that would be there if you didn't have perched water there?

MR. JENSEN: Okay. Only this one. This is the Snake River Plain Aquifer. The top of the aquifer is at 480 feet. And that's the one that's the natural one. These are as a result of the wastewater ponds.

MS. BENSEN: Thank you.

MR. JENSEN: And this is what it looks like down there. This is the lava rock that the water is in -- well, it's in cracks in this rock.

MS. GREEN: Any other questions before -- yes, Chuck?

MR. BROSCIOUS: What are the EPA --

what's the EPA's guidance on concentration limits in terms of picocuries per gram for cesium and strontium -- cesium-137 and strontium-90?

MR. JENSEN: Is that the drinking water standards?

MR. BROSCIOUS: No. It would be soil.

MR. JENSEN: I don't think there are any.

MR. STANISICH: There aren't any.

MR. JENSEN: There aren't any soil standards at all, are there?

MS. GREEN: That's essentially what the risk assessment is used to determine.

MR. BROSCIOUS: So, it doesn't apply to soil? It's strictly drinking water?

MR. JENSEN: And that's a federal standard. And I believe -- has the State adopted that as well?

MR. BROSCIOUS: How many grams are in a liter?

MR. STOOPS: Grams of water in a liter of water?

MR. BROSCIOUS: How many grams does a liter of water weigh?

MR. STOOPS: A liter of water would weight 1,000 grams at standard temperature and pressure.

MR. BROSCIOUS: And how -- well, they -- the listing in the administrative record has cesium-137 at 297 picocuries per gram.

MR. STOOPS: Right.

MR. BROSCIOUS: So, that's a pretty -- that's a pretty strong concentration if you compare ground and water, even just in general --

MR. STOOPS: A picocurie is a ten to the minus twelve, which is a trillion. It's a trillionth of a gram.

MR. STANISICH: No. You're -- you're mixing --

MR. BROSCIOUS: I realize that.

MR. STANISICH: -- activity per unit gram to mass per unit gram.

MR. BROSCIOUS: Picocuries per gram.

MR. STANISICH: If the cesium-137 detected in the pond at 297 picocuries per gram was translated to grams per gram, it would be 20 -- or 3.4 nanograms per kilogram or 3.4 parts per trillion.

MR. FREDERICK: I think there's another important consideration that needs to be made. You cannot make a direct conclusion from a drinking water standard to a soil concentration because the drinking water standard is based on two liters of water per day. You got somebody drinking two liters of water per day, and no one eats that much dirt a day, at least no one that I know. So, to use a health-based standard, you can't make a comparison there.

MR. BROSCIOUS: I don't think it would be hard for a kid to eat a gram -- I mean, that's a real small amount.

MR. FREDERICK: It would take two thousand grams of dirt to equal two liters of water. That would be one of those big coke bottles of dirt.

MS. GREEN: Every day.

MR. FREDERICK: Every day for 30 years.

MS. GREEN: Do we have any other questions before we begin the session for receiving formal oral comment on these two plans?

We'll let the court reporter change her tape and paper out. And we'll begin the comment session -- the formal comment session on these two proposed plans, then, in just a minute.

(Whereupon, a short break was taken.)

MS. GREEN: This portion of the meeting

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is designed for you to provide your oral testimony to DOE, EPA and the State regarding the Motor Pool Pond and Chemical Evaporation Pond proposed plans. Again, we'll listen to your comments, but will not respond to them tonight except to seek any clarification that may be needed in order to evaluate and respond to the comments. They will be responded to in a separate responsiveness summary for each topic.

And for the record, please state your name and spell it prior to providing your comments. And please identify which plan you are commenting on. You will -- you'll be provided five minutes for each plan that you would like to comment on.

If you're not able to put all of your comments into the five-minute period, please remember that you're also welcome to submit additional comments in writing by the close of the comment period on August 5th. And, again, written and oral comments receive equal consideration.

Okay. I'd like to see, then, a show of hands for those who would like to make oral comments on these plans and ask for a volunteer.

MS. MINEUR: My name is Lynn Mineur, M-I-N-E-U-R. Comments are submitted on behalf of the League of Women Voters of Moscow.

And the Motor Pool Pond at the Central Facilities Area, the League finds that the risk to human health is too great to allow a decision of no action at the central facility area Motor Pool Pond. The League finds that the model's assumptions of exposure for both occupational and residential use is to be understated. Yet, even with these understated exposure rates, the risk to human health is determined by the risk assessment model summarized in table two of the June 26, 1992, Dear Citizen letter exceeds one in one million increased cancers in all four scenarios. The League finds this health risk completely unacceptable.

The League also finds the table presented at tonight's public meeting does not substantially reduce the risk in three of those four scenarios and, therefore, does not alter the League's position.

Only in those indications where the no action alternative would result in a risk to human health of one or less increased cancers per one million people should the no action alternative be considered. The League vigorously and strenuously objects to the no action alternative for the Central Facilities Area Motor Pool Pond.

The League supports the option where sediments are removed, containerized and stored in a monitored retrievable site as required by RCRA.

The League formally requests that the preliminary assessments of waste area group ten begin immediately. The League finds that it is not in the best interest of public health to allow toxic, hazardous and radioactive materials to continue to contaminate the Snake River Aquifer for at least another seven years before the cumulative consequences of these no action decisions will begin to be evaluated.

Continuing evaluation of the cumulative consequences of contamination from each subsequent no action alternative will allow for the earliest detection of an unacceptable risk. This information should be included in the proposed plans for each operable unit in each waste area group. This procedure will allow the public to comprehend and track the cumulative risk of the clean-up program as it progresses rather than wait until the end as it's now scheduled.

The League objects to the fragmentation

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of projects into unconnected operable units as presented in the proposed plans described in the June 26, 1992, Dear Citizen letter. The public wants to see how each element fits together. If a source of contamination or portion of a facility will be considered under a separate plan or a separate operable unit, then these relationships must be spelled out in detail in the information provided to the public. It is too unwieldy for the public to chase down such vagaries as, quote, sediments in these ponds and the retention basin associated with the warm waste pond, as well as past contamination of the Snake River Aquifer, are being further evaluated under the agreement as separate operable units. That was the June 26, 1992 Dear Citizen at four -- excuse me, at A-4.

The appropriate operable unit and time frame for consideration must be identified in the text or as a note.

#T4-27
P-27

Our comments are respectfully submitted, Winifred Dixon, president and Lynn Mineur, Chair at INEL Study Group.

Thank you.

MS. GREEN: Did you -- Lynn, did you have comments on the Chemical Evaporation Pond, also?

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MS. MINEUR: It's real short. The League has no comments on this proposed portion of the plan.

MS. GREEN: Did we need to -- since it's separate, do we need to repeat her name and --

THE REPORTER: No.

MS. GREEN: Would anybody like to volunteer to be the second commenter?

MS. McREYNOLDS: I'll go. Mary McReynolds. Couple of comments I wanted to make before we proceeded. When we were talking earlier about numbers versus people, the gentleman in the green shirt whose name tag I can't read from here, had said that these numbers were out for public comment and sat out there for public comment. I would like for him to know that I've not always been involved as heavily in INEL things as I am presently. However, for a good many years, I have been highly involved in the Idaho Nurse's Association, honored by legislative committees as well as being past district president, been on several State committees.

One of the main concerns is listed and our platform happens to be environmental health. And had they been aware that this was out there for

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public comment, would have certainly alerted people around there.

So, it's not because I wouldn't have done it or I was -- I didn't know. So, I would suggest that though those things were out there, the people were not -- the information that they were there was not readily available to people, particularly if an organization such as the INA would miss it.

I want to come back to the idea, again, of you guys speak numbers. We speak people. And a risk of two in 100,000 is not acceptable for residents. I would like to see one in 100,000 -- or not one in one hundred -- one in one million.

You have down there for a resident outside would have 50 days a year outside. This is after a hundred years. Being a home owner who works in the yard, I can say I spend more than 58 hour -- days a year outside in my yard. So, the risk is driven up by that. It's not being taken into consideration if houses are built on this land and those types of things have not been taken into account.

I believe that this needs to be cleaned up. I think you need -- I think the risk needs to be driven down. I think you need to take the

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conservative. I think it needs to be one in one million. And you guys need to clean it up, containerize it and put it in retrievable storage.

The only -- I have two comments on the Auxiliary Reactor Area. One, I just didn't have enough information to make any kind of a decision on that whatsoever. I felt really lacking and really vague in the information that we were given because I have worked 13 out of the past 15 days -- and not at nuclear testing or anything having to do with INEL. I haven't had a chance to go to the administrative record. So, I can't back that up. I would have liked more information.

The second thing I have to say is, again, you guys are splitting up related operable units. I want to state this again. Things are related are not three separate facilities that have no action. Things are related are systems who contribute to one another.

When you are talking -- so, operable units that would be related would be, This pond is connected to the water. Underground is connected to all of these other things which states in your summary that these things, again, will be decided under separable operable units. These things are

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systems that work together. You need to treat them as systems that work together and to come, again, before us and have this all divided up and expect us, not to make the connections or hope -- maybe you hope we don't make the connections -- I find it unexcusable.

MS. GREEN: Could I clarify -- ask for a clarification? Your first couple of statements, your first few statements before, you mentioned the Chemical Evaporation Pond. Were those specifically regarding the Motor Pool Pond?

MS. McREYNOLDS: Yes, they were specifically regarding the Motor Pool Pond.

MS. GREEN: Thank you.

MR. BROSCIOUS: Chuck Broscious, B-R-O-S-C-I-O-U-S, Environmental Defense Agency. Central Facilities Motor Pool Pond. Agency plans to clean up the central facilities Motor Pool Pond failed to accurately acknowledge the source of, nor the quantities of significant radioactive contamination in the pit.

DOE's plan states only that, quote, on several occasions, vehicles and equipment with small amounts of radioactive contamination were decontaminated at the station. Concentrations of

8.41 picocuries per liter of cesium-137, americium-241 and plutonium-238 at 9.46 picocuries per liter and plutonium-239 at 4.29 picocuries per liter not adequately accounted for.

For those who are willing to read the administrative record, EG & G documentation says that, quote, long-lived fission products such as cesium-137, cobalt-60 and strontium-90 may have been added to the waste stream during decontamination of vehicles. Citation of EG and G-WM-9973 at thirteen. Also, potassium-40 concentrations of 8.73, lead-212 and radium-226 are not acknowledged.

Tritium contamination under the CFA ranges as high as 24,800 picocuries per liter, which means additional contamination loading from the Motor Pool Pond must not be allowed.

DOE's proposed plan also does not accurately state the volatile organic ranges. The Oak Ridge Survey sampling found 2-butanone at 190 micrograms per kilogram, trichloroethane at 25 micrograms per kilogram, toluene at 23 micrograms per kilogram, methylene chloride at 460 micrograms per kilogram, acetone at 85 micrograms per kilogram, tetachloroethlene at 76 micrograms per kilogram, 4-methyl 2-pentanone at greater than 8,300 micrograms per kilogram. None of the organic -- I'm sorry. Nine of the organic contaminants exceed EPA CRQL criteria.

Over INEL's history, many accidents and intentional releases have made transport of contaminants off the site a significant concern. Washing all vehicles has always been a standard operating procedure. Therefore, it's not surprising that these contaminants end up in the Motor Pool Pond. Clearly, the installation of motorized washing equipment made the process easier.

Risk calculations for worker exposure only allow for inhalation at 5 percent and direct contract -- and direct contact at 1 percent. This is grossly understated due to the close proximity of the pond to the Central Facilities Area. Both the State and the EPA review of the plan challenge DOE statements that EPA risk assessment methodology guidance was followed and point out that heavy metals such as silver and selenium were not acknowledged. Additionally, EPA challenges DOE's dismissal of the soil to groundwater pathway for contaminant migration.

EPA also challenges the use of average values that is inconsistent with EPA guidance requiring use of a 95 percent upper level confidence limit. cesium is also not included in the exposure assessment nor were alpha and beta emitters even tested for at the waste pit.

The agency decision of no action is not supportable, noncompliant with ARAR's and therefore, unacceptable. The PCB aroclor-1260 in concentrations of 1,470 micrograms per kilogram alone would dictate enforceable remedial action of exhuming contaminates to prevent further migration to the aquifer.

The proposed no action is not acceptable and under no circumstances should the State or EPA allow DOE to walk away from the contamination at this site. Contamination must be fully exhumed and put into a RCRA fully compliant and permitted repository and/or mixed TRU waste repository.

Auxiliary Reactor Area Chemical Evaporation Pond. Once again, Department of Energy generates a no action proposal without any substantive information to support the decision. The Auxiliary Reactor Area Chemical Evaporation Area is actually an unlined percolation waste pit for chemicals and radionuclides. Sampling did not include beta-emitting radionuclides.

Alpha and gamma isotopes are listed without any quantitative contaminate values and drinking water standards upon witch a reader could reasonably make an informed decision on the merits of the agency decision.

This chemical percolation pit is located at the ARA area one, which is the site of the infamous SL-1 reactor explosion which spewed out 1,100 curies and killed three operators. The ARA has a long and sordid reactor destruct experimental history including power burst reactor, gas-cooled reactor experiment, mobile power plant number one, SPERT reactors one and two, fast spectrum refractory metals reactor, hot critical experiment, fast transient reactor and related support facilities.

In the plan narrative, DOE commits nearly all discussion to trivializing the problem and offering little or no substantive information. The ARA facilities have extensively contaminated the ground in the area. DOE expects the public to accept background samples collected 100 feet from the pond.

Given ARA released 361,632 curies over its history, this choice for background sampling is ludicrous. Adding insult to injury, DOE characterizes these background readings as quote, unquote, naturally occurring.

The ARA lies immediately up gradient of the Big Lost River. As previously cited, a six-member groundwater study team commissioned by EG & G, an INEL contractor, was canceled after its preliminary results showed that contamination, quote, could move from INEL to the Magic Valley within months, closed quotes. Their findings revealed the presence of lava tubes which move water rapidly through the aquifer and exit at Thousand Springs on the Snake River.

Other DOE studies of aquifer contamination plume movement from ICPP to CFA between 1953 to 1958 document a seven foot per day or half mile per year. Contaminate travel time from surface disposal to the aquifer is approximately four to six weeks or ten feet per day.

The fact is that the aquifer is not a homogeneous geologic structure, but rather a very heterogeneous mix of different strata. Therefore,

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no generalized characterization about water movement within the aquifer is valid. The entire volume of the Big Lost River literally disappears into the porous Snake River Plain.

MS. GREEN: Did we have anybody else who would like to provide oral comments on either of these two proposed plans?

(No response made.)

If there are no other comments, before we close the meeting, I'd like, once again, to remind you that the comment period is open until August 5th. And please feel free to submit any additional written comments on any of the three plans we've discussed tonight, if you identify additional comments that you haven't already submitted.

I'd like to thank you all for attending and participating tonight and hope to see you at our next public involvement meeting. Thank you and good night.

(PROCEEDINGS ADJOURNED AT 9:55 P.M.)

WC-00301 (1)

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Comments

on

Idaho National Engineering Laboratory

Test Reactor Area
Central Facilities Area
Auxiliary Reactor Area
Cleanup Proposals

Submitted

by

Chuck Broscious

on behalf of

Environmental Defense Institute

July 23, 1992

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A. Test Reactor Area

The following comments address two proposed INEL Cleanup Plans for Test Reactor Area (TRA). The first Plan covers the contaminated "Perched Water" under the TRA (June 92). The second Plan covers cleanup of contaminates in the Warm Waste Pond Sediments at the TRA (July 91) and the Warm Waste Pond Record of Decision (12/3/91).

The proposals (hereinafter referred to jointly as the Plan) have significant deficiencies. These problem areas are the result of basic structural defects which include: 1.) Conflict of interest in DOE/INEL setting its own cleanup priority system; 2.) Lack of accountability and credibility in DOE/INEL managing its own cleanup program; 3.) Inadequate cleanup standards to protect future generations; 4.) Inadequate enforcement by the Environmental Protection Agency (EPA) and the State of Idaho; 5.) Segmented approach to cleanup frustrates a comprehensive assessment of the collective contamination being released by all the INEL waste sites. #W1-1 P-24 #W1-2 P-27

The INEL Cleanup Inter-Agency Agreement between DOE, EPA, and Idaho, could have resolved many of the aforementioned structural defects. EPA and the State however did not demand adequate funding, enforcement authority nor control over the cleanup process. A detailed EDI analysis to the Agreement is available on request.

Early staff reports to the Atomic Energy Commission (AEC) in 1947 were very critical of disposing of radioactive waste at INEL over Idaho's sole source aquifer because of the inevitable ground water contamination. Yet the AEC (DOE's predecessor) and DOE ignored science and made political decisions - science be dammed. This flawed decision making process continues today and must be changed. Unfortunately the Test Reactor Area (TRA) cleanup Plan is a continuation of this flawed process because DOE/INEL insists that the leach pond continue to be used until an alternate treatment facility is funded and built.

EDI concurs with Congressional Office of Technology Assessment's findings that significant fundamental policy initiatives are required - involving substituting independent, external regulation for the present DOE self-regulation over radioactive waste management. [OTA Brief 2/91]

1. TEST REACTOR AREA (TRA) BACKGROUND

DOE's characterization that INEL's, "primary missions are nuclear reactor technology and waste management" [Plan # 1] is not accurate. US Representative Richard Stallings accurately characterized INEL's programs as 80% military. As one of two designated "Super-Sites" for DOE's Complex 21, INEL's mission

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will be nearly exclusively nuclear weapons production and other military nuclear programs. The public deserves a more candid and accurate disclosure of INEL's mission.

INEL's background discussion also fails to mention that the Test Reactor Area (TRA) has forty-nine Solid Waste Management Units. These include leaching ponds, underground tanks, rubble piles, cooling towers, waste injection wells, french drains, and assorted spills where hazardous and mixed wastes exist. [SSP # 72] A reader of INEL's Plan might be led to believe that the Warm Waste Pond and the contaminated Perched Water are the only problem area at TRA. Additionally, the pond has been in continuous use for 35 years. [DOE/ID-12111 # 35]

TRA's reactor fuel cooling canal at the Materials Test Reactor had a severe leak which was not drained and repaired until a decade after it was discovered. This leak allowed large quantities of contaminated coolant water to escape to the soil below the TRA, but has not been identified in the Cleanup Plan as a contamination source. The largest contributor to groundwater contamination under the TRA was the radioactive waste injection well which was not closed until 1984. Discontinuing the use of injection wells due to pressure from the State, increased volumes of contamination in the leach ponds proportionally. #W1-3 P-27

The Test Reactor Area (TRA) leads all other INEL facility areas in radioactive solid waste disposal relative to curie content. DOE summary data between 1952 and 1981 cite 3,636,000 Ci. of solid waste disposed. [ID-10054-81] TRA supports the Advanced Test Reactor, Advanced Reactor Critical Facility Reactors, Hot Cell Facility, Nuclear Physics Research Program, Advanced Reactivity Measurement Facility, and Coupled Fast Reactivity Measurement Facility Reactors.

2. Test Reactor Area (TRA) Perched Water

TRA also leads the list of INEL facility areas for radioactive liquid waste discharges. Between 1952 and 1981 TRA released 50,840 Ci. to the soil. This figure does not include short-lived radioactivity with less than 2-3 day half-life. [Ibid. #14] DOE's "not action" decision at INEL's worst groundwater contamination area is a clear indication that there will be no remedial actions at other waste sites. #W1-4 P-24

Idaho State University monitoring found TRA highest in tritium concentrations. The size of the contamination plume under TRA is larger than DOE acknowledges. Well No. 65 south of [and beyond acknowledged plume] TRA had the highest results ranging from 43,5000 to 46,200 picocuries per liter. ['90 Oversight#2] #W1-5 P-01

The State challenges DOE's characterization of the size to the perched water contamination plumes because of the location

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and depth of the monitoring wells. The State's "review strongly suggests that wells along the north and northeast margin of the network are too deep to intercept or represent water levels in the perched water zone." "That is, the perched water zone may extend farther to the north and northeast than previously recognized" by DOE. [91 Oversight#3!] #W1-5 P-01

TRA groundwater liquid samples taken by DOE in 1991 for gamma emitting radionuclides include the following concentrations expressed in pico curies per liter (pCi/L): [Administrative Record, Summary Tables of Chemical and Radiological Analysis, Appendix C-4044405][Analytica-ID-12782-100-615 to D-632]

Nuclide	Concentration	EPA 1976 Drinking Water Limit	Number of times over
Cobalt-58	601 pCi/L	?	
Cobalt-60	12,200,000	100 pCi/L	122,000
Zinc-65	105,000	?	
Cesium-134	62,400	?	
Cesium-137	21,000,000*	200	105,000
Europium-152	108,000	60	1,800
Europium-154	130,000	200	650
Europium-155	20,400	600	34
Americium-241	16,700	6.34	2,634
Manganese-54	336	?	
Chromium-51	2,540,000	6,000	423
Scandium-46	4,140	?	
Iron-59	2,600	?	
Zirconium-95	11,500	200	57
Niobium-95	12,000	?	
Ruthenium-103	3,970	1,000	3
Rhodium-106	4,980	?	
Silver-108	14,400	?	
Antimony-124	150	?	
Cerium-141	6,140	?	
Hafnium-175	3,500	?	
Hafnium-181	136,000	1,170	117
Tantalum-182	3,180	?	
Mercury-203	1,680	?	
Curium-244	160	?	
Plutonium-239	12	?	
Uranium-234	520	?	
Strontium-90	18,000	8	2,250
Tritium	3,940,000	20,000	197
	40,346,369		

Gross Curie Concentration of above list 40,346,369 pCi/L

* The current (EPA, 1976) allowable limit in drinking water for Cesium-137 is 200 pCi/L and Cobalt-60 is 100 pCi/L. TRA Cesium-137 and Cobalt-60 concentrations are respectively 105,000 and 122,000 times over the allowable drinking water limit.

#W1-6 P-07

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TRA perched groundwater chemical contamination testing produced the following selected results: [Administrative Record, Analytics [D-12782-1]

Xylenes	31,000 ug/L(micrograms per liter)
Naphthalene	3,100 mg/L(milligrams per liter)
2-Methylnaphthalene	15,000 mg/L
Phenanthrene	3,300 mg/L

TRA's waste injection well (USGS-53) contributed 3.9 trillion gallons of contaminated liquid waste to the aquifer between 1964 and 1982. 31,131 pounds of hexavalent chromium was included in this waste volume. TRA's waste injection well (TRA-05) released 148,000 gal/day or a total of 220 million gallons. [Admin.Record,Appendix F #4-2544-26]

3. TEST REACTOR AREA (TRA) WARM WASTE POND

INEL's disclosure that, "The Warm Waste Pond is currently used only for disposal of reactor cooling water containing low levels of radioactivity", raises these questions: 1) how low are low levels of radioactivity, and 2) why is the pond still in use in violation of Resource Conservation Recovery Act (RCRA)?

The "low levels of radioactivity" the Plan describes as currently going to the Warm Waste Pond are actually not so low. "The service waste activity is allowed to average no more than three times drinking water tolerance in any isotope with the exception of very short-lived ones like Iodine-131." [IDO-14532 # 49] Even this disclosure does not account for the perched water having concentrations such as cobalt-60 at 122,000 times the drinking water limit. [see previous TRA perched water listing]

TRA percolation ponds, which replaced the injection well, receive 33 million gal. per year. Between 1952 and 1974 these ponds received 41,049 Ci. liquid discharges, or 83% of INEL's total of 49,745 Ci. liquid discharges for the period. [ERDA-1536#II-109,150,III-61] The upper two feet of the warm waste pond still contain 4,225 pCi/g of Cesium-137, 75.10 pCi/g of Plutonium-239/240. [Summary Tables of chemical & Radiological Analysis # Appendix F(4-33)] The high volumes of water was due to the once through cooling for the reactors requiring dilution. This also accounts for the high chromium contamination in the groundwater because chromium was used to retard corrosion in the reactor cooling systems. The three reactors (MTR,ETR, and ATR) discharged 55,353 pounds of chromium(VI). TRA pond algae registered 100 mR/hr. Ducks (usually 25 at any one time) using the pond registered the following radionuclide concentrations. [ERDA # III-75-76]

Nuclide	Concentration	Nuclide	Concentration
Cesium-137	890 pCi/g	Cerium-141	390 pCi/g
Cobalt-60	540 "	Iodine-131	18 "
Zinc-65	1100 "		

DOE calculated that an individual eating a duck would receive 20 mRem to the thyroid and 25 mRem whole body exposure. [Ibid] State standard limit is 4 mRem/yr. Chromium released to TRA ponds was 500 ppb. The standard at the time was .05 ppb or 10,000 times over regulatory standards. [Ibid. @III-79]

Continued use of the Warm Waste Pond clearly demonstrates DOE's misguided priorities and total disregard for environmental degradation. DOE is continuing to add radioactive contaminates to a site which has been identified for cleanup for over five years. The continued use of the pond insures that water will continue leaching previous contaminates further down into the aquifer. Moreover the Environmental Protection Agency (EPA) and the State of Idaho are remiss in their respective enforcement responsibilities for not closing down the Test Reactor Area ponds. EPA and the State have full justification to declare these ponds RCRA hazardous mixed waste sites as the following paragraph illustrate. #W1-7 P-20

"EPA is authorized [under RCRA] to issue a corrective action order, which can suspend or revoke the authority to operate an interim status Treatment/Storage/Disposal facility or to seek appropriate relief (including an injunction) from a US District Court. [OTA @ 28] [also see RCRA Section 3004(v); 42 USCA or 6924(v)(Vert Supp. 1990]

"Over the past 5 years, DOE has gradually been required to acknowledge that cleanup of the Nuclear Weapons Complex [including INEL] is subject to regulation by EPA (or the States) to the extent that hazardous materials are involved or a site is placed on the Superfund's National Priority List (NPL). Until 1984, DOE claimed that it was exempted from regulation under hazardous waste laws such as RCRA because or its Atomic Energy Act authority relating to national security and sovereign immunity from State regulation. A 1984 Tennessee Federal court decision rejected this claim and ordered DOE to comply with all RCRA provisions." [OTA @ 34] [citing, Legal Environmental Assistance Foundation v. Hodel, 586 F. Supp. 1163 (E.D. Tenn. 1984]

3. TEST REACTOR AREA (TRA) SUMMARY OF SITE RISKS

The Plan's listing of contaminants fails to list Iodine-129 and Plutonium-238, 239, and 240 which were found in TRA leach pond plankton in concentration ranges (CRs) from 40,000 to 400,000. Distribution coefficients for Pu isotopes in sediments ranged from 13,000 to 150,000. [DOE/ID-12111 @39] Due to I-129's 17 #W1-8 P-16

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million year half-life, and Plutonium's 24 thousand year half-life, these isotopes are considered permanent contaminates in the environment by EPA. #W1-8 P-16

The Plan also fails to quantify the range of contamination in TRA perched water. EDI concurs with the State's criticism of DOE for using only the MEAN concentration levels. #W1-9 P-04 P-07 Readers of the Plan deserve more information than they "exceed federal safe drinking water standards" or a footnote stating a standard of 4 mrem/yr. The standard for Cesium-137 (not stated) is 200 pCi/L. #W1-10 P-05

There is no justification for DOE to eliminate from consideration in the plan, radioactive isotopes which had half-lives of more than five years. This also holds true for the non-inclusion of Cesium (half-life of 30 yrs) in the exposure assessment. #W1-11 P-16 TRA lies immediately (less than 2 miles) up gradient to the Big Lost River. Considerable uncertainty exists as to contaminate transport time within the aquifer due to the existence of lava tubes etc. in a very non-homogenetic geology of the Snake River Plain Aquifer. #W1-12 P-08 Moreover, DOE's contention that "there is no current use of the perched water or contaminated Snake River Aquifer in the vicinity of TRA" and the decision to consider the potential use of the area for only a 125 years period, is unjustified and unacceptable. #W1-13 P-15 Drinking water wells for workers at the ICPP and Central Facilities Area are only 2-3 miles down gradient from TRA. #W1-14 P-15

A six member ground water study team commissioned by EG&G, an INEL contractor, was canceled after its preliminary results showed that contamination "could move from INEL to the Magic Valley within months." [Alley, 1980] Their findings revealed the presence of lava tubes which move water rapidly through the aquifer and exit at Thousand Springs on the Snake River. Another DOE study of contamination plumes from ICPP to CFA between 1953 to 1958 document a seven foot/day or one-half mile/yr. [ERDA-5316 #III-81] That means that TRA contamination could reach the Big Lost River in 2 years or less. The fact is that the aquifer is not a homogenous geologic structure, but rather a very heterogeneous mix of different strata. Therefore no generalized characterization about water movement within the aquifer is valid. The entire volume of the Big Lost River literally disappears into the porous Snake River Plain. #W1-15 P-08

The collective contaminate contribution to the aquifer from all INEL facilities must be immediately evaluated. Decisions based on each individual site are not assessing the total contaminate load on the aquifer. Therefore, a true comprehensive risk is not being assessed. Waste Area Group 10 is designed to cover the INEL site groundwater, but that investigation is not scheduled until 1999.[FFA01-37] In the mean time contaminates in the perched water under various facilities will migrate into the aquifer where no remediation options can be applied. #W1-16 P-27 P-28 No credible #W1-17 P-22 justification can be made for delaying an immediate pump and treat program for these contaminated perched water zones while they are still accessible. With gross curie concentrations exceeding 40 million pico curies per liter in TRA's perched water zone, a "no action" will likely precede other sites with less contamination. #W1-17 P-22

4. TRA RISK ASSESSMENT

Human health risk information appears not to consider the combined cancer risks for non-radionuclide and radionuclide from inhalation. Since the radionuclide component already "approaches the upper National Contingency Plan (NCP) limit"[Plan #3], the combined risks may push it over the limit.

"The carcinogenic risks due to the external exposure to radionuclides were found to be significantly above the recommended NCP target risk range."[Ibid] This DOE statement, as with other vague un-quantified statements, deserves specific numbers attached to it due to their obvious significance. EPA's standards are nearly two decades old and do not reflect current knowledge about the health risks to exposure to low levels of radiation. Health researchers from all over the world have demonstrated in their studies how non-protective the current standards - particularly with respect to genetic damage. Therefore, the conservative 1 chance in a million in getting cancer must be used, not the 1 in 10,000. #W1-18 P-12

Human health risks assessments additionally do not consider migratory water fowl using the TRA waste ponds. I-129 and other gama-emitting nuclide in tissues of ducks from the Test Reactor Area (TRA) leaching ponds have been known by INEL at least since 1981. [Health Physics 40: 173-181] Other DOE studies than those preciously cited state that: "Consumption of a duck immediately after leaving the TRA waste ponds would result in the predicted dose equivalent of about 10 mrem to an off-site individual from routine INEL operations(DOE/ID-12082(86))."[DOE-ID-12111#36] DOE acknowledges I-129 concentration AVERAGES of .3 pCi/gm. [ROD#35]

Despite the fact that DOE/INEL has known for a decade about water fowl being contaminated in their radioactive waste ponds, no public notice has ever been released. Plutonium-238, 239, and 240 concentrations in TRA leach ponds as previously cited has been studied at length in a 1987 INEL report. This report stated that, "The highest plutonium concentrations was found in net plankton. Plankton concentrations ratios ranged from 40,000 to 400,000 for the plutonium isotopes and varied with sampling dates. These values reflect to efficiency with which plutonium is taken up by plankton." [DOE/ID-12111 #39]

The above Plutonium figures are relevant when considering that the migratory water fowl are eating the plankton and moving off-site, and potentially into the Idaho diet. Two other DOE sites - Savannah River and Oak Ridge have had problems containing radioactivity on site. According to the Office of Technology Assessment (OTA), INEL has not attempted extensive ecological site characterization. "Although selected studies have been done on effects with potential relevance to the cleanup, there appears to be no systematic attempt to inform the cleanup process through ecological studies at INEL. The routine monitoring program there, is designed primarily to determine radionuclide pathways to human receptors and includes very little biological monitoring. Routine contaminant-level monitoring in animals is limited to game animals obtained from road kills." [OTA # 205]

Since the soil ingestion assessment for "cesium approached the upper limit of the recommended NCP target risk range" [Plan # 3] INEL must specify which "worst-case conditions" were used. Since, "It could take over 400 years for the cesium to naturally decay to an acceptable level", then cesium must be given appropriate consideration. [Plan # 7]

DOE's statement that any wastes generated or isolated during re-mediation activities "will be properly disposed of" is not only inadequate, it is based on credibility that DOE no longer can claim. Therefore, a full discussion must describe the required "cradle to grave" waste process. "DOE's current decisions lack credibility because of past failures by DOE and its predecessor agencies to deal effectively with environmental contamination and to make full public disclosure regarding the contamination and its impacts." [OTA # 3-14]

The fact that DOE has known since 1980 that it was contaminating the environment and deliberately avoided compliance with environmental law, warrants challenges to its credibility. [TRA, Warm Waste Pond ADS (Hazardous Conditions and Incidents)] According to the Office of Technology Assessment of INEL, "Characterization work is proceeding at a slow pace and is probably limited by funding. Investigation and testing of more conventional stabilization and containment techniques could be pursued more aggressively." [OTA # 34]

The decision by the Agencies (DOE,ID,EPA) to do nothing on interim actions on the TRA perched water is an affront to common sense and demonstrates blatant disregard for Idaho's most valuable resource - groundwater. Contaminated water in the perched zones must be pumped and treated to minimize further migration into the rest of the aquifer. The federal government must never again be allowed to foul our waters and just walk away. Billions of dollars currently being channeled into nuclear weapons materials production would more than adequately fund environmental restoration such as a pump and treat. It is unconscionable for Idaho & EPA to approve such a position. #W1-19 P-22 P-24

Environmental Defense Institute's proposed pump and treat immediate action is necessary because, "Contaminates may also form or absorb onto colloidal particles, which allows them to move with, or faster than the average groundwater flow. Flow can result from an apparently unrelated force, such as the flow of water and contaminates due to a thermal or electrical gradient instead of the expected hydraulic gradient. Chemical reactions and biotransformation may occur, possibly changing the toxicity or mobility of contaminates. Some contaminates dissolve and move with the water; some are in the gas phase; others are nonaqueous phase liquids; some are more dense than water and may move in a direction different from groundwater; others may be less dense than water and float on top of it." [OTA # 36] #W1-20 P-08 P-22

5. TEST REACTOR AREA WARM WASTE POND
INTERIM ACTION
Record of Decision

The TRA Warm Waste Pond Record of Decision (ROD) is deficient. The ROD does not include the immediate secession of use of the TRA leach ponds. EDI supports immediate secession of use of the leach ponds in combination with pumping contaminated perched water to a water treatment system for removal of ALL contaminates. #W1-21 P-20 P-22

EDI supports the ROD's chemical extraction and physical separation of pond sediment contaminates. These separated wastes must be safely stored in a monitored, retrievable form. However, the remedy criteria for removal of sediments of 690 pCi/gm must be equal to or less than the State standard of 4 mRem/yr.

6. TRA COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARAR's)

EDI challenges the Plan's statement that, "The sediment is not hazardous waste as described in RCRA, based upon tests conducted in 1990." [Plan # 7] Clearly the sediment is a hazardous mixed waste as defined by court challenges to DOE's obfuscation of RCRA definitions. DOE continues to circumvent RCRA requirements which specifically specify safe handling, treatment, disposal, and waste site closure standards. For instance, INEL's Radioactive Waste Management Complex (RWMC) is where radioactive and hazardous chemical wastes are continuing to be buried in unpermitted, unlined pits which would not even pass EPA's Subtitle D municipal garbage landfill standards.

The TRA pilot study goals state: "Minimize or eliminate any characteristic which makes the [warm waste pond] waste RCRA hazardous, including treatment if necessary". [ROD#30] This is indisputable evidence that there are RCRA classified constituents in the pond, and DOE's goal is to avoid RCRA requirements. RCRA closure requirements are further circumvented by not provid-

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ing a non-permeable cap on top of the pond after extraction operations. This is important to keep precipitation from leaching residual contaminates still suspended in the sub-soils.

The Plan brazenly proclaims - without protest from the State nor EPA - that, "the new lined evaporation pond must be operational before significant cleanup can begin on cells currently in use." This statement clearly and unequivocally identifies EPA and the State with complicity with DOE's highest priority being continued operation - not protection of human health and the environment.

"DOE's various priority systems have certain fundamental flaws and have yet to prove themselves useful in decision-making. The priority scheme used in the Five-Year Plan groups activities into four very broad categories. Most DOE activities fall into some portion of the first two categories primarily, ongoing activities..." "Yet, at present, the greatest uncertainty concerns the variables that should be given highest priority in these systems - reducing health and environmental risks." [OTA @ 62-63]

The priority system developed by DOE's Office of Waste Operations provides the categories in descending order of importance for action and funding Category one DOE puts "Maintains ongoing activities". [DOE Waste Management Operations Priority System Fact Sheet, Spring 1991]

Once again, DOE's priority system reflects the same misguided emphasis on continuing "operation" and "maintaining ongoing activities" in priority number 1 over its legal obligations to comply with environmental regulations in priority number 3. INEL's current crisis can be attributed to its historic failure to emphasize environmental compliance.

Placing formal agreements between DOE and local, State and Federal agencies in priority 2 ahead of its requirements to comply with external environmental regulations in priority number 3 is inappropriate. These agreements could be less restrictive and less adequate to protect health, safety and the environment. For example, funding for a weapons production facility could have a higher priority than complying with standards for radionuclide emissions, depending on the provisions of a particular compliance agreement with a state entity.

Protection of the public, compliance with environmental regulation, and environmental restoration must be priority 1 PERIOD. Because of the inherent conflict of interest, DOE should not be allowed to form its own priority system. Moreover, due to the fact that other departments such as Defense, Interior, and Agriculture also have massive contaminated sites requiring cleanup, a standardized priority system needs to be implemented. The Environmental Protection Agency has been trying unsuccessfully for several years to convince the Administration of this need. Public input and full public participation however must be included in developing any priority system.

Public confidence continues to be eroded by DOE's misguided priorities and its lack of commitment to meaningful environmental restoration and compliance with environmental regulation. DOE's credibility is so low and the inherent conflict of interest so great that another agency must be considered to undertake the massive cleanup - expected to exceed $ 200 billion. Clearly, DOE can not be trusted to manage cleanup funding when it is diverting "cleanup" funding into nuclear weapons production programs.

7. TEST REACTOR AREA (TRA) CLEANUP COST

Congressional Office of Technology Assessment (OTA) recommended that Congress "authorize an institution other than DOE to regulate those aspects of radioactive waste management activities not subject to DOE authority, and over which no other agency has authority, in order to enhance the credibility and effectiveness of those programs." [OTA # 141]

"By limiting DOE self-regulation and providing appropriate independent regulation of radioactive waste management at the [DOE] Weapons Complex, Congress could provide a credible and effective mechanism for addressing the issues, problems, and prospective solutions related to the safe treatment, storage, and disposal of existing and future radioactive waste." [OTA # 142]

8. STANDARDS FOR DETERMINING "HOW CLEAN IS CLEAN"

Conscientious environmental restoration of the INEL site where massive quantities of radioactive and chemical wastes have been recklessly dumped will not occur unless clear quantitative environmental standards are established. "How clean is clean." The Environmental Protection Agency tried to promulgate standards for high level and transuranic radioactive wastes in 1985 which offered inadequate protection. These standards were challenged by the Natural Resources Defense Council and were overturned by the First District Court of Appeals in 1987. Draft standards released in July 1991 with promulgation slated for 1993 are even less restrictive than the 1976 standards, and no-doubt they will also not sustain another legal challenge. These trends are consistent with the Reagan-Bush Administration's attempts to get government off the backs of the polluters. The biggest polluters being federal government facilities.

Office of Technology Assessment report states that: "The existing Federal guidance for protection of the public against radiation is outdated, and the development of new guidance is uncertain." "It is uncertain when and whether EPA would revise their standards to reflect: 1.) recent findings by the National Research Council's Committee on Biological Effects of Ionizing Radiation (BEIR V report) that the risks of low-level ionizing radiation are two to three times more serious than it previously anticipated and 2.) the draft recommendation by the International Commission on Radiological Protection that the current radiation limit for workers be reduced by 60 percent." (OTA # 41)

The Nuclear Regulatory Commission in 1990 adopted policy for radioactive waste below 10 millirem - declaring it "below regulatory concern" (BRC). According to this NRC policy, BRC waste can be disposed of like regular garbage without regard for its radioactivity. DOE wasted no time adopting the NRC's BRC standard because it allowed them to write off huge quantities of defense waste that might otherwise have been disposed of as radioactive waste. Due to an overwhelming public out-cry, the BRC classification has been temporarily put on hold by the NRC.

The federal government continues to violate its obligation to clean up its environmental disasters by setting standards which will minimize clean up costs - not maximize restoration. Risk minimization dictates that the establishment of environmental standards be guided by considerations of health impacts on current and future residents. DOE must assume that currently sparsely populated areas will not remain so. Declaring large areas of land as "nuclear sacrifice zones" into perpetuity is unacceptable - if not grossly unconscionable.

The National Academy of Sciences (NAS) offered standards in A Study of the Isolation System for Geologic Disposal of Radioactive Wastes. This study used risk based approach for standards setting. The NAS panel recommended that there be a limit on the dose to the maximally exposed individual at any future time from wastes buried in a repository. The NSA's risk based approach is the most sensible and scientifically supportable approach to standards. However the 10 millirem limit NSA recommended is far too high. Recent epidemiological studies are revealing that exposures at that level can cause serious health effects.

The public must be involved and able to fully participate in clean up standards. This issue must be specifically addressed and ample opportunity for public comment. The question of "How Clean is Clean" is a question that the public not government agencies must decide. Therefore, Congressional hearings are needed not only to address standards, but also the fundamental structural issues concerning the transfer of cleanup programs out of DOE and over to another agency or as Office of Technology Assessment (OTA) recommends a new independent external commission.

B. Central Facilities Area

Agency plans to cleanup the Central Facilities (CFA) Motor Pool Pond fail to accurately acknowledge the source of, nor the quantities of significant radioactive contamination in the pit. DOE's plan states only that: "On several occasions, vehicles and equipment with small amounts of radioactive contamination were decontaminated at the station." Concentrations of 8.41 pCi/l of Cesium-137; Americium-241 and Plutonium-238 at 9.46 pCi/l; and Plutonium-239 at 4.29 pCi/l are not adequately accounted for.

For those who are willing to read the administrative record, EG&G documentation says that: "long-lived fission products such as Cesium-137, cobalt-60, and Strontium-90 may have been added to the waste stream during decontamination of vehicles."[EGG-ER-9973#13] Also Potassium-40 concentrations of 8.73, Lead-212, and Radium-226 are not acknowledged. [EG&G 8752#36] Tritium contamination under CFA ranges as high as 24,800 pCi/l which means additional contamination loading from motor pool must not be allowed.[EO Oversight]

DOE's proposed Plan also does not accurately state the volatile organic ranges. Oak Ridge Survey sampling found 2-butanone at 190 ug/kg; trichloroethane at 25 ug/kg; toluene at 23 ug/kg; methylene chloride at 460 ug/kg; acetone at 85 ug/kg; tetachloroethlene at 76 ug/kg; and 4-methyl 2-pentanone at greater than 8,300 ug/kg. [Ibid.#4-6&11] Nine of the organic contaminates exceed EPA CRQL criteria. Over INEL's history, many accidents and intentional releases made transport of contaminates off the site of significant a concern. Washing all vehicles has always been standard operating procedure. Therefore, it is not surprising that those contaminates ended up in the Motor Pool Pond. Clearly, the instillation of motorized washing equipment made the process faster.

Risk calculations for worker exposure only allow for inhalation at 5% and direct contact at 1%. This is grossly understated due to the close proximity of the pond to CFA. Both State and EPA review of the Plan challenge DOE statements that EPA risk assessment methodology guidance was followed and point out that heavy metals such as silver and selenium were not acknowledged. Additionally, EPA challenges DOE's dismissal of the soil to groundwater pathway for contaminate migration. EPA also challenges the use of average values that is inconsistent with EPA guidance requiring use of a 95% upper level confidence limit. Cesium is also not included in Exposure Assessment nor were alpha and beta emitters even tested for at the waste pit.

The agency decision of "No Action" is not supportable, noncompliant with ARAR's, and therefore, unacceptable. The PCB Aroclor-1260, in concentrations of 1,470 ug/kg, alone, would dictate enforceable remedial action of exhuming contaminates to prevent further migration to the aquifer.

C. Auxiliary Reactor Area

Chemical Evaporation Pond

Once again, DOE generates a "No Action" proposal without any substantive information to support the decision. The Auxiliary Reactor Area (ARA) Chemical Evaporation Pond is actually an unlined percolation waste pit for chemicals and radionuclides. Sampling did not include beta-emitting radionuclides. Alpha and gamma isotopes are listed without any quantitative contaminate values and drinking water standards upon which a reader could reasonably make an informed decision on the merits of the Agency decision.

This chemical percolation pit is located at ARA Area I, which is the site of the infamous SL-1 reactor explosion which spewed 1,100 Ci out and killed three operators. The ARA has a long and sordid reactor destruct experimental history including Power Burst Reactor, Gas-Cooled Reactor Experiment, Mobil Power Plant #1, SPERT Reactors 1&2, Fast Spectrum Refractory Metals Reactor, Hot Critical Experiment, Fast Transient Reactor, and related support facilities.

In the Plan narrative, DOE commits nearly all discussion to trivializing the problem and offering little or no substantive information. The ARA facilities have extensively contaminated the ground in the area. DOE expects the public to accept background samples collected 100 feet from the pond. Given ARA released 361,632 curies over its history, this choice for background sampling is ludicrous. Adding insult to injury, DOE characterizes these background readings as "naturally occurring."

The ARA lies immediately up gradient of the Big Lost River. As previously cited, a six member ground water study team commissioned by EG&G, an INEL contractor, was canceled after its preliminary results showed that contamination "could move from INEL to the Magic Valley within months." [Aley, 1980] Their findings revealed the presence of lava tubes which move water rapidly through the aquifer and exit at Thousand Springs on the Snake River.

Other DOE studies of aquifer contamination plume movement from ICPP to CFA between 1953 to 1958 document a seven foot/day or one-half mile/yr. Contaminate travel time from surface disposal to the aquifer is approximately 4-6 weeks or 10 feet/day. [ERDA-5316011-1206111-011] The fact is that the aquifer is not a homogenous geologic structure, but rather a very heterogeneous mix of different strata. Therefore no generalized characterization about water movement within the aquifer is valid. The entire volume of the Big Lost River literally disappears into the porous Snake River Plain.

The Administrative Record lists the following contaminates in the ARA chemical "pond":

Cesium-137	297	pCi/g
Cesium-134	11.4	pCi/g
Strontium-90	297	pCi/g
Cobalt-60	8.14	pCi/g
Plutonium-239	2.6	pCi/g
Uranium-234	1.6	pCi/g
Methyl Chloride	26	ug/kg
Barium	293	mg/kg

[EGG-WM-10001[illegible]-16 to 4-20]

The proposed "No Action" is not acceptable and under no circumstances should the State or EPA allow DOE to walk away from the contamination at this site. Contamination must be fully exhumed and put into a RCRA fully compliant and permitted repository and/or mixed TRU waste repository.

Bruce L. Schmalz

6445 Sidehill Lane
Idaho Falls, Idaho 83401

Phone (208) 522-7176

July 14, 1992

RECEIVED
JUL 1 - 1992
ENVIRONMENTAL RESTORATION PROGRAM

Mr. Jerry Lyle
DOE Idaho Falls Office
P.O. Box 2047
Idaho Falls, Idaho 83403-2047

Re: Reclamation of pond areas at TRA-CFA-ARA

Dear Mr. Lyle:

This letter is to concur with the recommendations that no remedial action is justified.

In addition to the reasoning presented in your "solicitation for comments," efforts to clean up ground water at other locations in the country have not been technically or cost effective, and, in some cases necessary; for example, water to be used for industrial purposes need not meet drinking water purity. In the cases involved herewith, the contaminants concentrations are already below drinking water allowances. Use for any purpose is evidently not anticipated, therefore treatment action would seem foolish. #W2-1 P-23

Interest was provoked by the contaminant concentrations in Table I pg. A-7. Contaminant concentrations are expected to diminish with depth. The concentrations reported for chromium and tritium shown in Columns B and C contradict this assumption. #W2-2 P-06

I have some difficulty reconciling contamination concentrations in soil and water resulting from discharge between 1950 and 1970, which I reported in 1972 (IDO-100479) and those reported in Table I following another 20 years of waste water discharge.

With regard to the ponds at CFA and ARA, the "No Action" recommendation seems obvious, to say nothing about "the risk calculation" based on 250 day exposure, which in itself seems unrealistic.

The "No Action" recommendations based on factual logic (common sense) rather than response to political hysteria are gratifying. #W2-3 P-23

Sincerely,

Bruce L. Schmalz

Bruce L. Schmalz

WC-00303 (1)

RE... ...

JUL > 1992

ENVIRONMENTAL RESTORATION PROGRAM

Gary Adamson
EG& G Idaho, Inc.
PO Box 1625
MS 7129
Idaho Falls, Id. 83415

Dear Mr. Lyle,

I am a systems engineer at TRA. Part of my responsibilities are our liquid waste discharges. I agree with DOE's no action recommendation for remediation of the perched water tables under TRA. I do feel, however, that TRA should recycle its cold (non-contaminated) waste water. I have submitted a construction project request to put a reverse osmosis unit in our cold waste system. If we put our contaminated effluent into an evaporation pond and recycle the cold effluent, 85-90% of discharge to the perched water tables will be eliminated. The goal is to dry up the perched water tables and trap contaminants in the soil column. This will reduce the risk to human health, esp. from tritium and chromium, to negligable much sooner.

#W3-1
P-23

#W3-2
P-22

I realize that future construction projects are not part of the proposed action plan, but recycling liquid waste would be a significant part of any remediation action.

Thank you,

Gary Adamson

Gary Adamson

WC-00304 (1)

Snake River Alliance

☐ Box 1731 · Boise ID 83701 · 208/344-9161
☐ Box 4090 · Ketchum ID 83340 · 208/726-7271
☐ 310 E. Center · Pocatello ID 83201 · 208/234-4782

RECEIVED
AUG 3 1992
ENVIRONMENTAL RESTORATION PROGRAM

My name is Blan Holman. My address is 310 East Center, Pocatello. I am a native of Columbia, South Carolina, and the Savannah River Site is a familiar neighbor. For the past year, I have been with the Natural Resources Defense Council, where I spent a good deal of time focusing on the Idaho Chemical Processing Plant and its high-level waste. I am working with the Snake River Alliance this summer and am speaking this evening on behalf of its 1,200 individual, family, and business members.

Over three years ago, the Department of Energy promised to begin environmental restoration at the Idaho National Engineering Laboratory. Since that time, a steady stream of nuclear waste has continued to enter Idaho. Since that time, not a teaspoonful of INEL contamination has been "cleaned up."

In the meantime, government agencies have effectively undermined their promises for full public involvement in cleanup decisions.

Certainly, on the suface there appears to be a *banquet* of opportunities for public involvement. We have meetings--one right after the other--on the Community Relations Plan, proposed cleanup plans, the Site-Specific Plan. We even hear there are plans to start scoping for a site-wide environmental impact statement. There seems to be a whole lot of planning going on.

And there are agencies and departments within agencies eager to tell us everything they think we need to know about every single plan. Draft Records of Decision, of course, remain secret. Without prodding, the agencies wouldn't even tell us the plan for monitoring groundwater at the Test Reactor Area--125 years from now, even though *that* is the proposed plan. #W4-1 P-13 P-25

But all these meetings are, in reality, somewhat confusing, laborious, and redundant; they will ultimately frustrate and exhaust the public. Whether intentional or not, this balkanized approach to public involvement serves mainly to dissipate public participation, consuming the time and energy of public interest groups that might otherwise be spent on more productive pursuits.

Why don't we regard these meetings as productive?

Blurred in the seeming abundance of opportunities is the fact that no process yet exists that allows citizens to participate or even be represented on the front end of the decisionmaking process. Agency officials devise and present "proposed solutions," the public comments on these proposals, and then the agencies decide what, if any, changes to proposed actions will be taken in "response." While this process may occasionally--somewhere on earth--lead to significant alterations in a plan, it effectively precludes the public from challenging the basic planning premises.

One such premise, set forth on page A-9 of the Perched Water Plan, is the notion that the Department of Energy will retain control over the Idaho National Engineering Laboratory for the next 125 years, 23 years longer than Idaho has existed as a state. Who has decided that the INEL will be there for 125 years? Can they guarantee it? Did they ask the people of Idaho? #W4-2 P-14

I doubt it, but the people of Idaho might just see a pattern here. Does this projection mean that DOE will be maintaining control over high-level waste in Idaho until the year 2117? Does that constitute "interim storage"? Would that the DOE had taken such a long-range view when it put sodium-contaminated waste into single-walled tanks. Or maybe it did.

For cleanup to go properly, the people of Idaho need:

SUBSTANTIAL PROCESS REFORM

(1) Cleanup decisions cannot be left to the bureaucrats and the technocrats alone. These problems are social, not just technical.

(2) An Honest Commitment to Accountability to help restore citizen faith in the DOE. Citizen input should be welcomed and used, not tolerated then ignored.

(3) Full Disclosure of the environmental and health concerns, risks, and hazards at the INEL.

A RATIONAL POLICY FOR ENVIRONMENTAL PROTECTION AT THE INEL
The current patchwork of INEL "cleanup" policies is woven by inter-agency politics and inevitably warped by the DOE efforts to retain functions related to nuclear weapons in Idaho. We believe an honest analysis of the environmental, health, and economic issues involved in cleanup should include the following:

(1) No More Waste Should be Allowed Into Idaho.

(2) On-Site Waste Production Should be Reduced.

(3) On-Site Contamination Should be Handled Rationally.
  a. Deal with Imminent Threats Immediately (HLW tanks)
  b. Keep mobile waste from spreading
  c. Use "interim actions" *only* if they reduce risk without significantly complicating future remediation

(4) Determine Cleanup Standards Through Public Involvement.

1024 East Fifth St.
Moscow, ID 83843
July 24, 1992

RECEIVED
AUG 1 1 1992
ENVIRONMENTAL RESTORATION PROGRAM

Jerry Lyle, Deputy Assist. Manager
Environmental Restoration and Waste Management
DOE-Idaho Field Office
Box 2047
Idaho Fall, ID 83403-2047

Dear Sir:

This letter is in response to the "Perched Water System beneath the Test Reactor Area" plan for INEL. I attended the public comment meeting held on Moscow on July 23, but was unprepared to respond at that time. Since then I have studied the documents provided. I respectfully request that you reject your plan of no action and proceed to develop a plan based on considerations I shall present below. #W5-1 P-23

My comments shall be in three sections: 1) general concerns that your planning process has lost sight of the overall seriousness of the environmental pollution threat presented by INEL, 2) specific comments about your characterization of the site and the model used to derive the data upon which you base your risk assessments, and 3) suggestions for an action plan for the perched water system beneath the Test Reactor Area.

<u>Section 1</u>

First, let me say that I was quite surprised by the apparent philosophy of DOE, EPA, DEQ and Dames and Moore in your approach to the situation at INEL. We are in the last decade of the twentieth century, the cold war is over, and the general public has major concerns about environmental pollution and wants to do something about it. Given what we've come to understand about the functioning of our environment and radionuclides and heavy metals as environmental toxins, INEL would never be located on the Eastern Snake River Plain in this day and age, even in the name of national security. From an environmental point of

1

view, it was a mistake to have located INEL on the Snake River Plain and now that we recognize it, we need to take all reasonable action to ameliorate and remediate the problems which it is causing.

Clearly, your philosophy and planning process were oriented to minimizing the recognition of potential pollution problems posed by INEL and the perched water system beneath the test reactor area. Your philosophy should have been one of open recognition of the threats posed by INEL, with its multitude of pollution sources, leading to a reasonable remediation plan for the perched water system beneath the test reactor area. The major issue is not the interpretation of selected data about the potential hazard of any given site at INEL -- the major issue is that INEL poses a huge risk to our environment and should be managed to minimize the risk at any and all points. #W5-2 P-27

Lest you have forgotten the overall characteristics of the INEL site, allow me to state some of the risks of the site that are obvious to everyone. Outside of a couple of active volcanic areas in Hawaii and the Aleutians, there is no major area in the U.S. or North America that is more geologically active than the Eastern Snake River Plain. Witness Craters of the Moon, just a few miles from INEL. Witness the most recent basalt flow on INEL, about 70,000 years old -- just this morning in geologic time -- and another could occur at any time. Witness the Challis earthquakes and the major earthquake zone just to the north of INEL with Idaho's highest peak being actively pushed up. Is this a setting in which we should minimize the potential threats of pollutants which will last longer than these geologic events have been occurring?

Next consider the fact that Eastern Snake River Plain is composed of a highly permeable bedrock and sediments. The permeability data being fed into the flow model notwithstanding, what other areas of the world do you know of where all the streams and rivers flowing out of a major mountain system simply sink into the ground -- not evaporate, but drain into the lithology? Take a look at the basalt of the Craters of the Moon, or along the freeway between Blackfoot and Idaho Falls -- do these jumbled, fractured masses look like they're very restrictive to water movement? The ponds at the Test Reactor Area were presumably constructed to take advantage of this characteristic before their potential threat to #W5-3 P-08 the environment was recognized. It is only reasonable to conclude that pollutants introduced into the subsurface at INEL are going to continue to readily percolate downward with the water.

Finally, please consider the overall situation of the water associated with INEL -- water which has the potential to carry the pollutants out of the INEL and into our living environment. The situation of the Snake River Aquifer is fairly clear. If the pollutants are leached through the porous basalt and sediments into the aquifer, they are going to appear in our environment sooner or later, which given the persistence of the pollutants being produced at INEL, means we or our ancestors are going to have to deal with them. #W5-3 P-08

But consider the sources of the water that might move the pollutants down to the aquifer. Even in a desert, some rainfall rapidly moves below the plant rooting zone and thenceforth moves down to the water table. But more importantly to most of the facilities in the western part of the INEL, they are located in the floodplain and sink areas of the Big and Little Lost Rivers. Drive through the INEL. Vast expanses of basalt flows lightly covered with loess deposits typify the area. Anyplace where there is sufficient soil to allow easy construction and access, the soil and sediments are in fact primarily water deposited -- and in most locations, there is some historical record of surface water being in the area. Geomorophologically, there is considerable evidence that major floods have occurred on the INEL since the last basalt flow -- enough to cover the Radioactive Waste Management Center with 50-60 feet of water. #W5-4 P-03

I shall reserve a detailed discussion of water sources for deep percolation with respect to the problems of the Test Reactor Area characterization and modelling for the next section of this comment.

To summarize the first section of my comments, however, I have pointed out that the INEL is a very unfavorable site for the production and storage of long-lived environmental toxins and pollutants. The site is geologically unstable, is highly porous, feeds directly into a major aquifer, and has numerous potential sources of water to leach pollutants into the aquifer. These are generally recognized risks of the site. The governmental agencies and consultants who prepared the plan for the perched water system beneath the test reactor area have not adequately considered these overall characteristics and risks of the INEL in conducting their analyses. They should recognize outright that the site is a high risk area for environmental pollutants. They should focus their planning on management and remediation that will minimize the potential for pollutants to be introduced to the environment. A "No Action" plan does not do this.

#W5-4
P-03

#W5-5
P-24

Section 2

Next, I shall make a few comments about the characterization of the Test Reactor Area site and the model used to develop the data for the risk assessment analyses of the perched water tables. I hope that you recognize and readily admit that the site characterization and modelling drives your plan. If they are in error or inadequate, the rest of the analyses for the plan become meaningless. I shall point out where they are inadequate and may be in error.

The most glaring oversight is the failure to consider the general site characteristics in your model development. In section 1, I have pointed out the general site characteristics which I think are important. You note some of them, but do not use them either in the model or the risk assessment. The most important site characteristics with regard to the model and analyses presented, surface and subsurface water as they impact the Test Reactor Area site, are not even discussed in any serious manner. In fact, rather than using the known site characteristics, (i.e., recent and strong geologic activity, high diversity and porosity of the resulting lithology, and geomorphic evidence of flooding) to temper the model results, the assumptions used to make the model work categorically deny the diversity and importance of these landscape features.

#W5-6
P-02
P-03

The model is driven by the water input boundary condition. No discussion nor analysis is presented of the fact that the Test Reactor Area is located on the floodplain of the Big Lost River, nor of the fact that there is considerable evidence of major catastrophic flooding in the area. (From my knowledge of the area, there is also the possibility for subsurface lateral water movement out of smaller drainages of the mountains to the northwest.) There is lots of room for discussion with regard to how these facts might impact on the potential risk of the pollutants being deposited at the site. However, given the fact that the potential water input

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drives the model and everything else in this plan, all potential sources of water input should have been thoroughly discussed and weighted. They are not.

At the public session presented in Moscow, the officials present denied that the Test Reactor Area is on the floodplain of the Big Lost River, choosing the technicality of some "100 year floodplain boundary". Simple observation of an aerial photo of the site shows that at the very least two of the ponds at the site are within the meander scar system of the Big Lost River. A significant portion of the pollutant plume is under this same meander scar system. According to documents I have read, it is my understanding that virtually all the area within the meander scar system of the Big Lost River is considered the current flood plain of the river. You have disabused clearly observable features and data by claiming that this part of the meander scar system is above some hypothetical 100 year flood plain without any data to support your conclusions. Until you can cite unequivocal evidence for your position, which you do not in the documents, the evidence from photos of the flood plain clearly states the case that the Test Reactor Area ponds are on the current flood plain of the Big Lost River. The implications of this fact are immense for any analyses of the potential to leach the pollutants to the Snake River Aquifer. #W5-6 P-02 P-03

Throughout the modelling effort, the assumption is made that water from the current course of the Big Lost River is not impacting or interacting in any way with the water in the deep perched water table. Yet in your own analyses, you explain some anomalous data in some of the test wells during years when the river was flowing as the result of water from the river keeping the perched water from flowing out in its normal path. You have no evidence that there is no interaction between percolating water from the river when it's in its channel (i.e., not even flooding) and water in the lower perched water table. In fact, in periods when the river flows, it is a more reasonable assumption that there will be interaction between the percolating river water and the lower perched water table given the proximity of the two bodies of water. The fact that the flow model chosen for this evaluation cannot deal with percolating water input from the river does not justify assuming that it will not happen. #W5-7 P-02 The reality which you have not dealt with in the plan is that there probably is going to be interaction between percolating water from the Big Lost River and the lower perched water table at several intervals over the next 125 years. #W5-8 P-02

In addition to the two highly probable water input sources just noted, there are other potential input sources which need to be addressed in the plan. From a hydrogeologic point of view, you have not been comprehensive in dealing with potential inputs, in spite of the fact that the inputs drive the whole modelling effort and the subsequent hazard analyses. I shall not enumerate further potential inputs but note that your potential inputs are in error simply from the two discussed above and possibly from others. #W5-8 P-02

Moving on to the water inputs you have chosen to recognize in your model -- continued leaching from the ponds and surface rainfall -- your results are simply unverifiable, and therefore in question, because you do not present the code by which the data are considered in the model. To conclude, as you have, that the model is verified because you are able to reproduce historical data within an order of magnitude is unacceptable. We need to see much more of how you were able to simulate this data. The groundwater modeling literature is replete with comments to the effect that one can reproduce data with virtually any model if enough parameters in a model are adjusted. My impression of the results of the modelling effort used in this plan is that it was simply a curve fitting exercise, with very little consideration given to known data about the area. We need to see much more of what the model contains and how the data were used before there can be much confidence in the model results.

#W5-9 P-09

What we're interested in at INEL is 1) whether the model reflects at a minimum what we know to be happening in the ground water movement, 2) whether, having used this information, we are able to reliably reproduce historical records, and 3) whether the model reflects reality well enough that we are comfortable projecting into the future. Since we don't see the computer code, or how and which data were used, we simply cannot know this from the results presented in the plan. However, there are some clear indications in what is presented that the model is not being used to meet 1 and 2 above, and probably is not appropriate for this effort. At the very least, you need an independent, professional analysis and verification of the groundwater modelling techniques used for this plan.

The question of water inputs discussed above is certainly one of the major concerns of the model. The model reproduces historical data which is largely driven by water input as leachate from the ponds, which is presumably going to cease in the near future. What verification is there that the model is anywhere close to accurate for simple low level rainfall input, or high intensity rainfall event inputs, or flood event inputs, or interactions with river percolate once leachate from the ponds ceases to dominate? These in fact will be the major water input sources when pond leaching ceases. It comes back to my conclusion that the water input analysis for this modelling effort is completely inadequate.

For the model fitting effort, enough information is given in the plan to lead to serious questions about the procedures used. Apparently, one of the primary parameters varied to make the model fit were the Kd values for each of the geologic layers. Typically, Kd values are either measured in the field or laboratory on the geologic materials being modelled and these values are entered and maintained in the model. It is highly unusual to fit a model by picking and choosing which geologic layers should have a Kd value assigned to it or not, and even more unusual to vary these values to be able to fit a model curve to the data. Essentially, the modelers have assigned retention characteristics to the soil and rock materials to make the data fit with little consideration that chemical retention is an inherent property of the geologic material. Any historical data curve could be reproduced using this method but what proof is there that these juggled values really reflect the true Kd values of the different materials? Very little or none. #W5-9 P-09

Finally, in spite of all its obvious defects and limitations, the model is used to churn out leaching and pollutant concentration values for 125 years into the future, and these data are used for the rest of the planning effort as though they are hard, real, measured data. In fact, they are highly speculative and unreliable and deserve to be treated with a great deal of reserve. At the very least, the modelled data should be used with variances or confidence intervals attached to them. As an example of what this modelled data might really mean, if the model functions within an order of magnitude reliability (as noted to indicate the "robustness" of the model), that implies that projections for leaching pollutants out of the lower perched water table over 125 years could occur within the range of 12.5 years to 1250 years. If all the projected solute leaching to the Snake River Aquifer occurs in 12.5 years, the site is in a very serious condition. Nothing in the modelling effort indicates that this is not a possibility. We all know that projections into the future have a degree of unreliability. It is #W5-10 P-10 imperative that the modelled projections used in these analyses have a statistical reliability attached to them. Otherwise, they appear to represent little more than wishful thinking or scientific dishonesty, or both. #W5-10 P-10

To summarize and conclude section 2, the characterization and modelling of groundwater and pollutant movement at the Test Reactor Site are inadequate, if not erroneous. Many of the reasonable sources of water to leach the pollutants into the Snake River Aquifer are not considered in the report. The model used to predict pollutant movement is not presented in any detail to allow analysis of its applicability or appropriateness. The little information that is presented on how the model was used indicate that it was used in a very narrow, "curve-fitting" sense to historical pond leachate data at the Test Reactor Site with little regard for the known geologic and hydrologic characteristics of the Snake River Plain. The modelled data used to drive the rest of the planning effort are presented without any quantification of their reliability in a scientific sense.

In short, the authors of the plan have not convinced me that they know with any level of confidence what is going to happen over the next 125 years to pollutants in the perched water tables below the Test Reactor Site. I have not addressed all the problems is see in this modelling effort. At the very least, the site characterization and modelling for this plan should be reviewed by an independent team of professionals before the plan is adopted.

Section 3

Finally, the above discussion leads me to conclude that a very different approach needs to be taken to the plan for the perched water tables under the Test Reactor Area. The modelling effort presented in the plan documents requires too many simplifying assumptions that do not reflect the reality of the Snake River Plain. There can be no confidence at all in the modelled results of the potential effects on the Snake River Aquifer.

I recommend for the interim that action be taken at the Test Reactor Area which relates to the situation as we know it – major environmental pollutants and toxins are situated in perched water tables which, unless action is taken, will leach into the Snake River Aquifer. There are a number of actions which should be taken immediately to minimize this risk. #W5-11 P-20 P-22

1. All leaching of polluted water through the ponds at the Test Reactor Area should be halted immediately. It is against the law to pollute the environment with toxic heavy metals and radionuclides. The DOE and INEL are not outside the law. They must stop dumping pollutants into the environment. There is no excuse for them to continue.

2. Every effort should be made to minimize or stop the downward flow of water to and through the perched water tables. This includes any further leaching of water through the ponds at the Test Reactor Area. An impermeable geofabric or layer of kaolinitic clay should be used to cover the whole of the perched water table area, including a reasonable margin beyond the area of the perched water table. All rain or flood water leaching down through the soil to the geofabric or clay layer should be drained away to the Big Lost River through a layer of coarse sand placed above the geofabric or clay. Perhaps even the river should be placed in an impermeable channel through the area in proximity to the perched water table.

3. Immediate action should be taken to begin massive pumping of the polluted water up out of the perched water table. The water should then be purified and the toxins transported and stored in a safe environment that can be monitored.

4. Future action may be required to pump liquid adsorbents into the perched water table area to try to remove more of the pollutants. Monitoring of the perched water table areas and better controlled modelling of the pollutant impacts will be required before this action should be taken.

#W5-11
P-20
P-22

These recommended actions will go a long ways towards addressing the problems in the Test Reactor Area as we understand them today. Monitoring and assessment of the cumulative effects of all the pollution being generated at INEL may lead to the requirement of more drastic measures in the future. We cannot afford to take "no action" based on the faulty analyses presented in the plan being presented by DOE. We owe it to ourselves, our children, and our world to be as conservative as possible in the preservation of our

#W5-12
P-24
P-28

environment. A plan of "no action" to reduce man-caused pollution of the Snake River Aquifer is simply unacceptable.

I respectfully submit the above comments for your consideration and request that you reject the plan as presented by DOE. If you would like further information from me, or clarification of my comments, please do not hesitate to contact me.

#W5-12
P-24
P-28

Sincerely

Thomas V. Dechert

Thomas V. Dechert
1024 East Fifth
Moscow, Idaho 83843
Tel: 882-0972

cc: Mr. Wayne Pierre
Mr. Dean Nygard
Ms. Betty Benson
Mr. Chuck Broscious

League of Women Voters of Moscow
MOSCOW, IDAHO 83843

Comments on the following proposed clean up plans at the INEL:

*** Perched Water System beneath the Test Reactor Area;**

*** Motor Pool Pond at the Central Facilities Area; and**

*** Chemical Evaporation Pond at the Auxiliary Reactor Area**

submitted by the League of Women Voters of Moscow

July 23, 1992

The League of Women of Moscow is pleased to be able to present these comments in person at a public meeting held in northern Idaho. The League is reassured by our government's recognition of the public's right to the opportunity to participate in the clean up process regardless of whether the public chooses to exercise that right at any given time. The League continues to request language in the INEL Community Relations Plan that will guarantee that at least one public meeting on each cleanup project be held in the northern part of the state.

League members attended a technical briefing held in Moscow on July 14, and met on July 21, 1992 to prepare the following comments:

Perched Water System beneath the Test Reactor Area:
The League has grave reservations about the proposed decision to allow the contaminated sediments in the deep water perched pond to remain there. #W6-1 P-24 A risk assessment based on mean concentrations of contaminants is in danger of understating the risk. This is of special significance when the decision is to take No Action. The League requests that the risk assessment be repeated based on a model that considers the highest concentrations before a No Action alternative be found acceptable. #W6-2 P-04

The League requests written identification of the specific operable units under which each of the five ponds and basins listed as sources of the shallow perched water system will be evaluated. This information was not provided in the June 26, 1992 Dear Citizen letter. The League also requests written assurance that the sediments in the shallow perched water system will be included in the RI/FS studies for each of these operable units. #W6-3 P-27

The League objects to the continued use of the warm waste pond and the cold waste pond in light of the decision to allow the contaminants in the deep perched pond to remain as a source of contamination to the Snake River Aquifer. #W6-4 P-20

Motor Pool Pond at the Central Facilities Area:
The League finds the risk to human health too great to allow a decision of No Action at the Central Facilities Area Motor Pool Pond . The League finds that the model's assumptions of exposure for both occupational and residential uses to be understated. Yet even with these understated exposure rates, the risk to human health as determined by the risk assessment model summarized in Table 2 of the June 26, 1992 Dear Citizen letter exceeds 1 in one million increased cancer ~~deaths~~ in all four scenarios. The League finds this health risk completely unacceptable. Only in those cases where the No Action alternative would result in a risk to human health of one increased cancer ~~death~~ per one million people should the No Action alterative be considered. The League vigorously and strenuously objects to the No Action alternative for the Central Facilities Area Motor Pool Pond. The League supports the option where sediments are removed, containerized and stored in a monitored retrievable site as required by RCRA.

Chemical Evaporation Pond at the Auxiliary Reactor Area:
The League has no comments on this proposed plan.

In closing, the League formally requests that preliminary assessments on Waste Area Group 10 begin immediately. The League finds that it is not in the best interest of public health to allow toxic, hazardous and radioactive materials to continue to contaminate the Snake River Aquifer for at least another seven years before the cumulative consequences of these No Action decisions will begin to be evaluated. Continuing evaluation of the cumulative consequences of contamination from each subsequent No Action alternative will allow for the earliest detection of an unacceptable risk. This information should be included in the proposed plans for every operable unit in each waste area group. This procedure will allow the public to comprehend and tract the cumulative risk of the clean up program as it progresses. #W6-5 P-27 P-28

The League objects to the fragmentation of projects into unconnected operable units as presented in the proposed plans described in the June 26, 1992 Dear Citizen letter. The public wants to see how each element fits together. If a source of contamination or portion of a facility will be considered under a separate plan or a separate operable unit than these relationships must be spell out in detail in the information provided to the public. It is too unwieldy for #W6-6 P-27 P-28 the public to chase down such vagaries as " Sediments in these ponds, and the retention basin associated with the Warm Waste Pond, as well as past contamination of the Snake River Aquifer, are being further evaluated under the Agreement as separate operable units." (June 26, 1992, Dear Citizen, A-4) The appropriate operable unit and time frame for consideration must be identified in the text or as a note.

#W6-6
P-27
P-28

Respectfully Submitted,

Winifred Dixon

Winifred Dixon
President

Lynn Mineur

Lynn Mineur, Chair
INEL Study Group

* The League finds that the table presented at the public meeting does not substantially reduce the risk in 3 of the 4 scenarios, and therefore does not alter the League's ~~finding~~ position. L. Mineur 7/23/92

Moscow, Idaho

July 23, 1992

We do not feel that "No remedial action" is the proper solution for dealing with the contamination in the Perched Water System beneath the Test Reactor Area, the Motor Pool Pond at the Central Facilities Area, and the Chemical Evaporation Pond at the Auxiliary Reactor Area. #W7-1 P-24

Dividing the INEL into so many waste area groups, and these into operable units, may make it easier to manage the investigations, but all of this fragmentation does not provide us with the total picture. Adding all the "below-risk" factors of all the operable units of all the waste area groups together might result in a level which should demand remedial action. It seems very important to have a preliminary risk assessment of the whole area in order to come up with valid solutions. #W7-2 P-27

We wonder about the wisdom of averaging the concentrations of contaminants found in different areas. Using the highest concentrations would change the picture drastically. Revisions in what is considered safe concentrations for these contaminants have always been downward instead of upward, and it makes more sense to err on the conservative side if we cannot be sure just what is safe. #W7-3 P-04

Finally, what are "safe concentrations" for all of the populations, flora and fauna, found in the INEL area. We do not believe that the "safe concentration" level for the harvester ant, for example, is known--yet the conclusion is made that no harm will occur to humans <u>or the environment</u>. Do you even know how many species are in the environment? #W7-4 P-19

Patricia Scott

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WC-00308 (1)

Chairperson
Focus - Burley, Ida

Carolyn Rondo

INEL's background discussion also fails to mention that the Test Reactor Area (TRA) has forty-nine Solid Waste Management Units. These include leaching ponds, underground tanks, rubble piles, cooling towers, waste injection well, french drains, and assorted spills where hazardous and mixed wastes exist. [SSP @ 72] A reader of INEL's Plan might be led to believe that the Warm Waste Pond and the contaminated Perched Water are the only problem area at TRA. Additionally, the pond has been in continuous use for 35 years. [DOE/ID-12111 @ 39] #W8-1 P-27

TRA's reactor fuel cooling canal at the Materials Test Reactor had a severe leak which was not drained and repaired until a decade after it was discovered. This leak allowed large quantities of contaminated coolant water to escape to the soil below the TRA, but has not been identified in the Cleanup Plan as a contamination source. The largest contributor to groundwater contamination under the TRA was the radioactive waste injection well which was not closed until 1984. Discontinuing the use of injection wells due to pressure from the State, volumes to the leach ponds increased proportionally.

The Test Reactor Area (TRA) leads all other INEL facility areas in radioactive solid waste disposal relative to curie content. DOE summary data between 1952 and 1981 cite 3,636,000 Ci. of solid waste disposed [ID-10054-81] TRA supports the Advanced Test Reactor, Advanced Reactor Critical Facility Reactors, Hot Cell Facility, Nuclear Physics Research Program, Advanced Reactivity Measurement Facility, and Coupled Fast Reactivity Measurement Facility Reactors.

TRA also leads the list of INEL facilities for radioactive liquid waste discharges (83%). Between 1952 and 1981 TRA released 50,840 Ci. to the soil. This figure does not include "short-lived radioactivity less than 2-3 day half-life. [Ibid. @14] The size of the contamination plume under TAN is larger than DOE acknowledges. Idaho State University monitoring found TRA highest in tritium concentrations. Well No. 65 south of [and beyond acknowledged plume] TRA had the highest results ranging from 43,5000 to 48,200 picocuries per liter. ['90 Oversight@21]

~~The State~~ We question challenges DOE's characterization of the size to the perch water contamination plumes because of the location and depth of the monitoring wells. The State's "review strongly suggests that wells along the north and northeast margin of the network are too deep to intercept or represent water levels in the deep perched water zone." "That is, the deep perched water zone may extend farther to the north and northeast than previously recognized" by DOE. [91 Oversight@31] #W8-2 P-01

TRA percolation ponds, which replaced the injection well, receive 33 million gal. per year. Between 1952 and 1974 those ponds received 41,049 Ci. or 83% of INEL's total of 49,745 Ci. for the

"Over the past 5 years, DOE has gradually been required to acknowledge that cleanup of the Nuclear Weapons Complex [including INEL] is subject to regulation by EPA (or the States) to the extent that hazardous materials are involved or a site is placed on the Superfund's National Priority List (NPL). Until 1984, DOE claimed that it was exempted from regulation under hazardous waste laws such as RCRA because or its Atomic Energy Act authority relating to national security and sovereign immunity from State regulation. A 1984 Tennessee Federal court decision rejected this claim and ordered DOE to comply with all RCRA provisions." [OTA @ 34] [citing. Legal Environmental Assistance Foundation v. Hodel, 586 F. Supp. 1163 (E.D. Tenn. 1984)]

3. TEST REACTOR AREA (TRA) SUMMARY OF SITE RISKS

The Plan's listing of contaminants fails to list Iodine-129 and Plutonium-238, 239, and 240 which were found in TRA leach pond plankton in concentration ranges (CBs) from 40,000 to 400,000. Distribution coefficients for Pu isotopes in sediments ranged from 13,000 to 150,000. [DOE/ID-12111 @39] Due to I-129's 17 million year half-life, and Plutonium's 24 thousand year half-life, these isotopes are considered permanent contaminates in the environment by EPA. #W8-3 P-16

The Plan also fails to quantify the range of contamination in TRA perched water. EDI concurs with the State's criticism of DOE for using only the MEAN concentration levels. #W8-4 P-04 Readers of the Plan deserve more information than that they "exceed federal safe drinking water standards" or a footnote stating a standard of 4 mrem/yr. The standard for Cesium-137 (not stated) is 200 pCi/L. This places Cesium-137 1,315 times over the drinking water standard. Americium-241 is 140 times over; Strontium-90 is 570 times over; and Tritium is 92 times over the drinking water standard. #W8-5 P-05

There is no justification for DOE to eliminate radioactive isotopes which had half-lives of more than five years, and non-inclusion of Cesium (half-life of 30 yrs) in the exposure assessment. #W8-6 P-16 TRA lies immediately (less than 2 miles) up gradient to the Big Lost River. Considerable uncertainty exists as to contaminate transport time within the aquifer due to the existence of lava tubes etc. in a very non-homogenetic geology of the Snake River Plain Aquifer. #W8-7 P-08 P-15 Moreover, DOE's contention that "there is no current use of the perched water or contaminated Snake River Aquifer in the vicinity of TRA" and that only considered use of the area in 125 years is totally unjustified and unacceptable. #W8-8 P-14 P-15

A six member ground water study team commissioned by EG&G, an INEL contractor, was canceled after its preliminary results showed that contamination "could move from INEL to the Magic Valley within months." [Aley, 1980] Their findings revealed the presence of lava tubes which move water rapidly through the aquifer and exit at Thousand Springs on the Snake River. Another DOE study of contam- #W8-9 P-08 ination plumes from ICPP to CFA between 1953 to 1958 document a seven foot/day or one-half mile/yr. [ERDA-5316 @III-81] That means that TRA contamination could reach the Big Lost River in 2 years or less. The fact is that the aquifer is not a homogenous geologic structure, but rather a very heterogeneous mix of different strata. Therefore no generalized characterization about water movement within the aquifer is valid. The entire volume of the Big Lost River literally disappears into the porous Snake River Plain. #W8-9 P-08

4. TRA RISK ASSESSMENT

Human health risk information appears not to consider the combined cancer risks for non-radionuclide and radionuclide from inhalation. Since the radionuclide component already "approaches the upper National Contingency Plan (NCP) limit"[Plan @3], the combined risks may push it over the limit.

"The carcinogenic risks due to the external exposure to radionuclides were found to be significantly above the recommended NCP target risk range."[Ibid] This statement, as with other vague unquantified statements, deserves specific numbers attached to it due to their obvious significance. EPA's standards are nearly two decades old and do not reflect current knowledge about the health risks to exposure to low levels of radiation. Therefore, the conservative 1 chance in 10,000 chance in getting cancer must be used, not the 1 in a million. #W8-10 P-12

Human health risks assessment additionally do not consider migratory water foul using the TRA waste ponds. I-129 and other gama-emitting nuclide in tissues of ducks from the Test Reactor Area (TRA) leaching ponds have been known by INEL at least since 1981. [Health Physics 40: 173-181] "Consumption of a duck immediately after leaving the TRA waste ponds would result in the predicted dose equivalent of about 10 mrem to an off-site individual from routine INEL operations(DOE/ID-12082(86))."[DOE-ID-12111@36] DOE acknowledges I-129 concentration AVERAGES of .3 pCi/gm. [ROD@35]

Despite the fact that DOE/INEL has known for a decade about water foul being contaminated in their radioactive waste ponds, no public notice has ever been released. "DOE has historically avoided public notification of releases from the weapons plants and their possible health effects. This practice has created substantial public distrust of DOE's methods and motivation." [OTA @ S-9]

Plutonium-238, 239, and 240 concentrations in TRA leach ponds as previously cited has been studied at length in a 1987 INEL report. This report stated that, "The highest plutonium concentrations was found in net plankton. Plankton concentrations ratios ranged from 40,000 to 400,000 for the plutonium isotopes and varied with sampling dates. These values reflect to efficiency with which plutonium is taken up by plankton." [DOE/ID-12111 @39]

The ~~above~~ Plutonium figures are relevant when considering that the migratory water foul are eating the plankton and moving off-site, and potentially into Idahoan's diet. Two other DOE sites - Savannah River and Oak Ridge have had problems containing radioactivity on site.

According to the Office of Technology Assessment (OTA), INEL has not attempted extensive ecological site characterization. "Although selected studies have been done on effects with potential relevance to the cleanup, there appears to be no systematic attempt to inform the cleanup process through ecological studies at INEL. The routine monitoring program there, is designed primarily to determine radionuclide pathways to human receptors and includes very little biological monitoring. Routine contaminant-level monitoring in animals is limited to game animals obtained from road kills." [OTA @ 205]

Since the soil ingestion assessment for "cesium approached the upper limit of the recommended NCP target risk range" [Plan @ 3] INEL must specify which "worst-case conditions" were used. Was it a hot, dry, day, down-wind? "It could take over 400 years for the cesium to naturally decay to an acceptable level." [Plan @ 7]

DOE's statement that any wastes generated or isolated during re-mediation activities "will be properly disposed of" is not only inadequate, it is based on credibility that DOE no longer can claim. Therefore, a full discussion must describe the required "cradle to grave" waste process. "DOE's current decisions lack credibility because of past failures by DOE and its predecessor agencies to deal effectively with environmental contamination and to make full public disclosure regarding the contamination and its impacts." [OTA @ S-14]

The fact that DOE has known for decades that it was contaminating the environment and deliberately avoided compliance with environmental law, warrants challenges to its credibility. According to the Office of Technology Assessment of INEL, "Characterization work is proceeding at a slow pace and is probably limited by funding. Investigation and testing of more conventional stabilization and containment techniques could be pursued more aggressively." [OTA @ 34]

The decision by the Agencies (DOE,ID,EPA) to do nothing on interim actions on the TRA perched water is an affront to common sense and demonstrates blatant disregard for Idaho's most valuable resource - groundwater. ** Contaminated water in the perched zones must be pumped and treated to minimize further migration into the rest of the aquifer. The federal government must never again be allowed to foul our waters and just walk away. Moneys currently being channeled into nuclear materials production would more than adequately fund environmental restoration such as a pump and treat It is unconscionable for Idaho & EPA to approve such a position. #W8-11 P-24 #W8-12 P-22

** The ROD does not include the immediate secession of use of the TRA leach ponds.

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League of Women Voters of Moscow

MOSCOW. IDAHO 83843
514 East Morton Street

July 24, 1992

Dean Nygard, Acting Federal Facilities Program Manager
Idaho Division of Environmental Quality
1410 N. Hilton
Boise, Idaho 83720-9000

Subject: Request for an extension of the comment period on the Proposed Plan for the Motor Pool Pond at the Central Facilities Area; and

Request that the public be notified of the error in the reported risk assessment data in the June 26, 1992 Dear Citizen letter

Dear Mr. Nygard:

Please accept this letter as an official request for a thirty (30) day extension of the comment period on the Proposed Plan for the Motor Pool Pond at the Central Facilities Area. This time extension is requested in order for the three agencies to notify the public of a substantial error in the reported risk assessment summary data in Table 2 of the June 26, 1992 Dear Citizen letter. This error came to light at the public meeting held in Moscow on July 23. To our knowledge, those members of the public who were not in attendance at that meeting have no way of knowing the information on which they are making their comments is in error. Therefore, the League also requests that the public be notified of the error and provided with the correct data.

Sincerely,

Lynn Mineur

Lynn Mineur
Chair, LWVM INEL Study Group

copy: Winifred Dixon, President

APPENDIX A

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Chuck Broscious	P-16	W1-8	392
Chuck Broscious	P-16	W1-11	392
Chuck Broscious	P-20	W1-7	391
Chuck Broscious	P-20	W1-21	395
Chuck Broscious	P-22	T4-16	321
Chuck Broscious	P-22	T4-17	321
Chuck Broscious	P-22	T4-17	322
Chuck Broscious	P-22	W1-17	392
Chuck Broscious	P-22	W1-17	393
Chuck Broscious	P-22	W1-19	394
Chuck Broscious	P-22	W1-20	395
Chuck Broscious	P-22	W1-21	395
Chuck Broscious	P-24	T4-16	321
Chuck Broscious	P-24	W1-1	387
Chuck Broscious	P-24	W1-4	388
Chuck Broscious	P-24	W1-19	394
Chuck Broscious	P-27	T4-15	319
Chuck Broscious	P-27	W1-2	387
Chuck Broscious	P-27	W1-3	388
Chuck Broscious	P-27	W1-16	392
Chuck Broscious	P-28	W1-16	392

Thomas V Dechert	P-02	W5-6	409
Thomas V Dechert	P-02	W5-6	410
Thomas V Dechert	P-02	W5-7	410
Thomas V Dechert	P-02	W5-8	410
Thomas V Dechert	P-02	W5-8	411
Thomas V Dechert	P-03	W5-4	408
Thomas V Dechert	P-03	W5-4	409
Thomas V Dechert	P-03	W5-6	409
Thomas V Dechert	P-03	W5-6	410
Thomas V Dechert	P-08	W5-3	407
Thomas V Dechert	P-08	W5-3	408
Thomas V Dechert	P-09	W5-9	411
Thomas V Dechert	P-09	W5-9	412
Thomas V Dechert	P-10	W5-10	412
Thomas V Dechert	P-10	W5-10	413
Thomas V Dechert	P-20	W5-11	413
Thomas V Dechert	P-20	W5-11	414
Thomas V Dechert	P-22	W5-11	413
Thomas V Dechert	P-22	W5-11	414
Thomas V Dechert	P-23	W5-1	406
Thomas V Dechert	P-24	W5-5	409
Thomas V Dechert	P-24	W5-12	414
Thomas V Dechert	P-24	W5-12	415
Thomas V Dechert	P-27	W5-2	407
Thomas V Dechert	P-28	W5-12	414
Thomas V Dechert	P-28	W5-12	415
Dennis Donnelly	P-24	T1-4	71
Blan Holman	P-13	T1-1	67
Blan Holman	P-13	W4-1	404
Blan Holman	P-14	T1-2	68
Blan Holman	P-14	W4-2	405
Blan Holman	P-25	T1-1	67
Blan Holman	P-25	W4-1	404
Carolyn Hondo	P-01	T2-4	161
Carolyn Hondo	P-01	T2-4	162
Carolyn Hondo	P-01	W8-2	420
Carolyn Hondo	P-04	W8-4	421
Carolyn Hondo	P-05	T2-6	162
Carolyn Hondo	P-05	W8-5	421
Carolyn Hondo	P-08	T2-7	162
Carolyn Hondo	P-08	T2-7	163
Carolyn Hondo	P-08	W8-7	421
Carolyn Hondo	P-08	W8-9	421
Carolyn Hondo	P-08	W8-9	422
Carolyn Hondo	P-12	W8-10	422
Carolyn Hondo	P-14	T2-8	163
Carolyn Hondo	P-14	W8-8	421
Carolyn Hondo	P-15	T2-8	163
Carolyn Hondo	P-15	W8-7	421
Carolyn Hondo	P-15	W8-8	421

Carolyn Hondo	P-16	T2-5	162
Carolyn Hondo	P-16	W8-3	421
Carolyn Hondo	P-16	W8-6	421
Carolyn Hondo	P-20	T2-1	160
Carolyn Hondo	P-20	T2-2	160
Carolyn Hondo	P-20	T2-2	161
Carolyn Hondo	P-22	T2-10	164
Carolyn Hondo	P-22	W8-12	423
Carolyn Hondo	P-24	T2-9	163
Carolyn Hondo	P-24	T2-9	164
Carolyn Hondo	P-24	W8-11	423
Carolyn Hondo	P-27	T2-3	161
Carolyn Hondo	P-27	W8-1	420
John Horan	P-05	T1-15	81
John Horan	P-07	T1-13	79
John Horan	P-11	T1-14	79
John Horan	P-11	T1-14	80
John Horan	P-14	T1-11	78
John Horan	P-14	T1-11	79
John Horan	P-23	T1-10	77
John Horan	P-23	T1-10	78
John Horan	P-23	T1-12	79
John Horan	P-26	T1-16	82
Mary McReynolds	P-03	T4-10	313
Mary McReynolds	P-03	T4-10	314
Mary McReynolds	P-04	T4-7	312
Mary McReynolds	P-17	T4-12	314
Mary McReynolds	P-17	T4-12	315
Mary McReynolds	P-18	T4-9	313
Mary McReynolds	P-20	T4-6	312
Mary McReynolds	P-20	T4-11	314
Mary McReynolds	P-27	T4-5	311
Mary McReynolds	P-27	T4-8	312
Mary McReynolds	P-27	T4-8	313
Mary McReynolds	P-27	T4-11	314
Mary McReynolds	P-27	T4-13	315
Lynn Mineur	P-04	T4-2	309
Lynn Mineur	P-04	W6-2	416
Lynn Mineur	P-20	T4-4	310
Lynn Mineur	P-20	W6-4	417
Lynn Mineur	P-24	T4-1	309
Lynn Mineur	P-24	W6-1	416
Lynn Mineur	P-27	T4-3	309
Lynn Mineur	P-27	T4-3	310
Lynn Mineur	P-27	T4-27	373
Lynn Mineur	P-27	T4-27	374
Lynn Mineur	P-27	W6-3	416
Lynn Mineur	P-27	W6-5	417
Lynn Mineur	P-27	W6-6	417
Lynn Mineur	P-27	W6-6	418

Lynn Mineur	P-28	W6-5	417
Lynn Mineur	P-28	W6-6	417
Lynn Mineur	P-28	W6-6	418
Louise Regelin	P-21	T4-23	324
Louise Regelin	P-21	T4-23	325
Louise Regelin	P-24	T4-22	324
Louise Regelin	P-24	T4-24	325
Louise Regelin	P-24	T4-24	326
Louise Regelin	P-24	T4-26	327
Louise Regelin	P-27	T4-24	325
Louise Regelin	P-27	T4-24	326
Louise Regelin	P-27	T4-25	327
Louise Regelin	P-28	T4-25	327
Bruce Schmalz	P-06	W2-2	402
Bruce Schmalz	P-23	T1-5	71
Bruce Schmalz	P-23	T1-6	71
Bruce Schmalz	P-23	T1-6	72
Bruce Schmalz	P-23	W2-1	402
Bruce Schmalz	P-23	W2-3	402
Patricia and Donald Scott	P-04	T4-20	323
Patricia and Donald Scott	P-04	W7-3	419
Patricia and Donald Scott	P-19	T4-21	323
Patricia and Donald Scott	P-19	W7-4	419
Patricia and Donald Scott	P-24	T4-18	322
Patricia and Donald Scott	P-24	W7-1	419
Patricia and Donald Scott	P-27	T4-19	322
Patricia and Donald Scott	P-27	T4-19	323
Patricia and Donald Scott	P-27	W7-2	419
John E. Tanner	P-23	T1-3	70
John E. Tanner	P-23	T1-3	71
Michael J. Ushman	P-22	T3-2	218
Michael J. Ushman	P-23	T3-1	216

(176 rows affected)